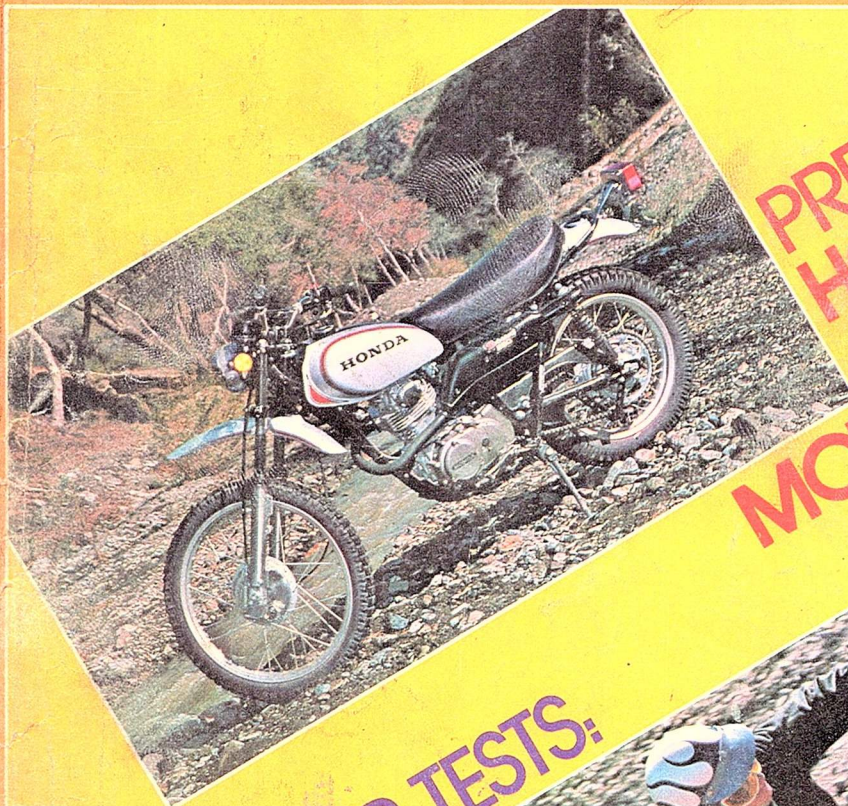


CYCLE WORLD

AMERICA'S LEADING MOTORCYCLE ENTHUSIASTS' PUBLICATION

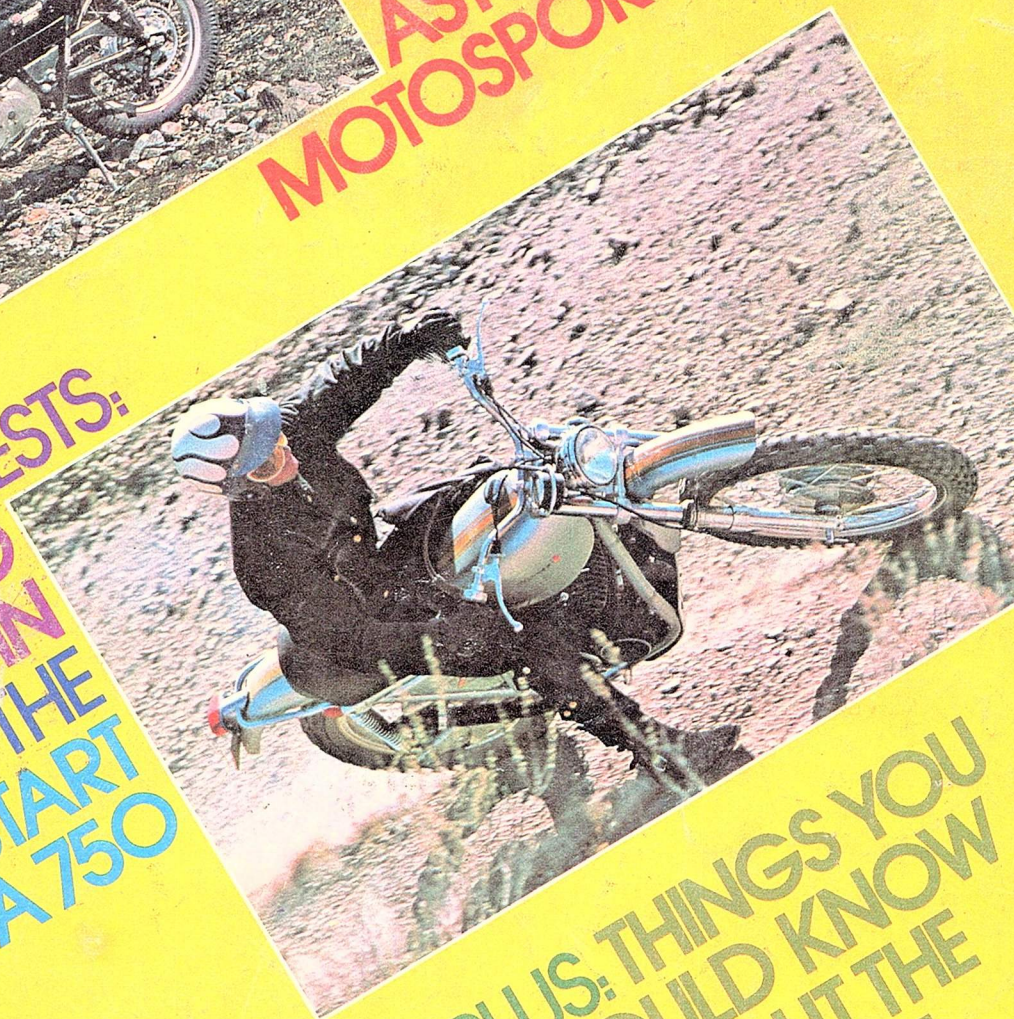
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PREVIEW:
HONDA'S
ASTONISHING
MOTOSPORT 250

FIRST-EVER TESTS:
YANKEE 500
SIX-SPEED TWIN
AND THE
ELECTRIC START
LAVERDA 750



PLUS: THINGS YOU
SHOULD KNOW
ABOUT THE
DESERT

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by Commando Interstate

Introducing a new Commando style, a long distance strider with the speed of a sprinter. 6 gallon gastank, full size buddy seat with optional styled-to-match saddlebags, luggage rack and fairing.

There can't now be a Superbike more suitable for long range riding than the Commando with its arrogant good looks, unique vibration-free Isolastic construction, dynamic performance and ultimate roadability. If you want to go far faster – choose Interstate.

Also new options – Norton-Lockheed front disc hydraulic brake manufactured by Norton Villiers Limited to Lockheed design now offered to you after exhaustive testing and high output Combat engine with raised compression ratio and Norton "Double S" cam for even more dramatic performance on and off the freeway.

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If you haven't yet tried the thrill of the world famous Norton Experience, sample it at your Norton dealer. You won't be disappointed.



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-all with the isolastic super-ride

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Norton Villiers Corporation, 6765 Paramount Blvd.,
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CONTRIBUTING EDITORS

JOE BOLGER
Eastern United States

B.R. NICHOLLS
England

CARLO PERELLI
Italy

JACK YAMAGUCHI
Japan

HEINZ SCHNEIDER
Germany

CONTRIBUTORS

HENRY N. MANNY
STAN MOTT

JON DAHLSTROM
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J.L. BEARDSLEY
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APRIL 1972 VOLUME 11 NUMBER 4

CYCLE WORLD

AMERICA'S LEADING MOTORCYCLE ENTHUSIASTS' PUBLICATION

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COVER: Two unusual new dirt/street machines with an emphasis on dirt—Honda's Motosport 250 and Yankee's six-speed 500 Twin, photographed by Dan Hunt.

ROUND UP

BY
JOE
PARKHURST

ANOTHER GRAND OLD MAN of motorcycling died recently. Bob Bates, founder of Bates Industries and owner of Maywood, Calif., Honda, was killed in a traffic accident, while returning from a desert race with two young riders he sponsored.

Bob formed Bates Industries in 1943, first making windshields for Cushman motorscooters. After the war he expanded his business into motorcycle accessories. All of us old-time desert riders remember the Bates seats—they did more for desert racing than just about any other product. Seats weren't as good in those days as they are now, nor did the bikes ride as well in the rough as they do now, so Bates seats

were widely known and loved.

Bob retired from the Bates Company in 1965; but in 1967, unable to stay inactive, he established the Maywood Honda dealership and continued to be active in the sport. He rode many AMA tours, rode in drag races, even setting records. Bob was only 58. He is survived by two sons, Bob Jr., his partner in the Honda dealership, and Fred Bates; and a daughter, Diane King, plus a brother and a sister.

Bob's "old red wagon" was well known in the 50s, serving as a voluntary ambulance service. For many reasons, he will be deeply missed.

AMERICAN MOTOCROSS CALENDAR

The American Motocross Team is preparing for the 1972 season in a big way. Yamaha International has offered bikes for team captain Bryan Kenney and his new team member, Gary Jones. The AMXT will first race in the AMA Florida professional Winter series, then they are off for Europe. I am personally extremely gratified to see Yamaha's interest in the team's efforts; it is a sincere gesture and one that shows genuine interest in the future of Americans in International motocross.

We have devised a way to raise some more capital for 1972. The AMXT has a handsome new 1972 calendar for sale, designed and produced by Bryan's wife, Laurie. She even took the fabulous photographs of the International Motocross stars! The calendar is available for a \$3.95 donation from Box 3276, Hollywood, CA 90028. It's a way to support the team for 1972, and receive

a handsome and useful calendar in return.

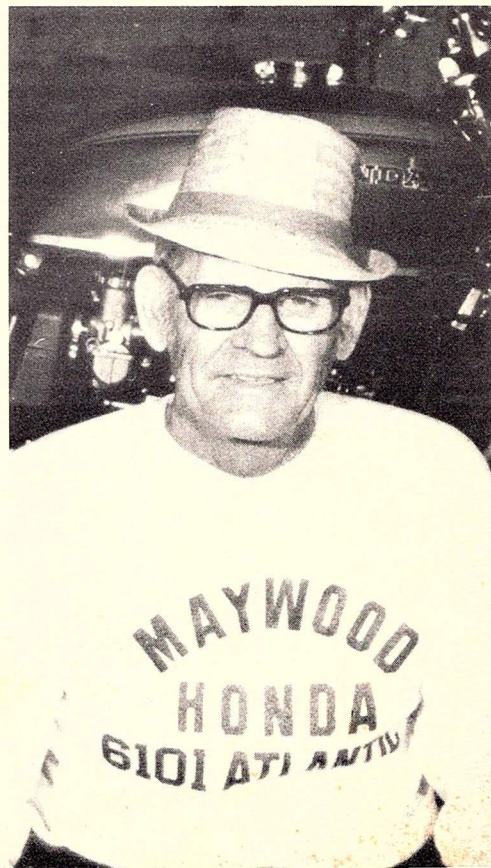
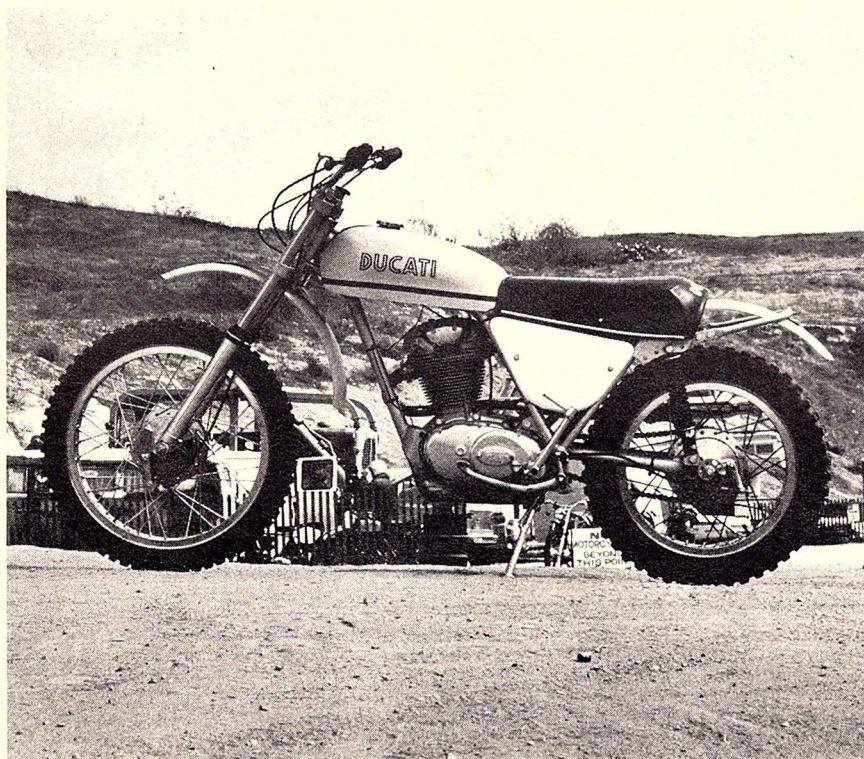
Other riders are being considered for the team's first efforts in Europe in April—among them are Bob Grossi, Mark Blackwell, Jim West, Peter Lampuu, DeWayne Jones and Tom Rapp. I'll have more news on this later.

DUCATI 450 MX MODS

I've been experimenting with my Ducati 450 motocross a little, trying to improve the handling and add to its flexibility. Jack Simmons Motors made me a new set of fork triple-clamps that add to the rake and increase the wheel-base. This helped quite a bit and made the machine a good deal more stable in the rough at speed. Koni shocks also made a world of difference.

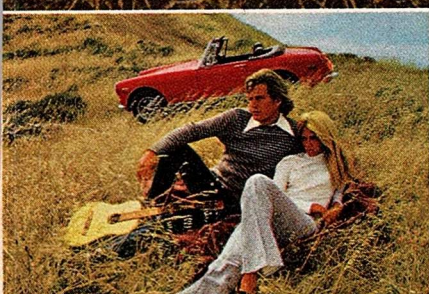
I've removed the brittle plastic fenders and replaced them with the soft, flexible Preston Petty plastic jobs, thus ending the constant problem of cracking and breaking with the least damage. A Filtron air filter in place of the paper element was, of course, extremely important. Akront alloy rims with steel spokes ended another problem. The Italian rims are so soft that the spokes pull out quite quickly. A Krizman spark arrester quieted it down, making it legal in the National Forests and meeting the ever-increasing demands of enduro promoters and enemies of noise pollution.

With no more than all that, the 450 Ducati is the answer to the thumper lovers dreams. I love it! If I had had something like this in the fifties, I would have been one of the hottest guys going. (Well....)





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out front.
Without setting
you back.**



An authentic sports car doesn't have to have a classy price tag. Take the MG Midget. Of all the proven winners in national SCCA sports car racing, the Midget's the one with the lowest price tag.

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LETTERS

PENTON, ON THE ISDT

Thank you for the most authentic report in *CYCLE WORLD* on the 1971 ISDT. You told the complete story as it was and every word of it is the truth.

As for a good number of our American reporters who believe our boys will never ride as fast and as good as the Europeans, tell them to stick around a few years.

I was 33 years old when I won my first National and have lived long enough to win 34 more and one Grand National Championship along with six Canadian Championships.

The cross section of comments from most of our publications are not constructive and positive and certainly would lead to the discouragement of many young potential riders. If they put their pens in a championship attitude, we will be world champs one of these years. As a matter of fact, we will be world champs without them because I

have a group of people that *believe, believe in America, the AMA and our youth.* (Youth and experience are the only things that will cut it.)

We have invested dearly in our youth and the results are starting to be seen. Experience costs bundles of money today. Just fly boys to the Six Days for three years and have them ride all over the country. Test these costs.

Maybe there is a little resentfulness in the pens of these writers instead of the long inferred togetherness.

John A. Penton, President
Penton Imports Co.
Lorain, Ohio

SPEED WEEK

The Bonneville Nationals, Inc. would like to express our appreciation for your coverage of Speed Week in the December issue of *CYCLE WORLD*.

The Speed Week contestants travel to the Salt each year simply because they love their sport, and the challenge of mechanical ability against the clocks and nature is a magical force there. No cash awards are given for records set or class wins, and although they are proud of what they accomplish, recognition received through the pages of publications such as your own is very gratifying and encouraging to them.

We would appreciate it if you could include in a future issue the address

where your readers may write for membership and general Speed Week information.

The 24th Annual Bonneville National Speed Trials are scheduled for Aug. 20 through 26, 1972. Hopefully, we will see *CYCLE WORLD* there.

Emil Grisotti
Chairman of the Board
Bonneville Nationals, Inc.
11919 E. Washington Blvd.
Whittier, CA 90606

YAMAHA ADS

Yamaha has an ad about how they put their street machines to the test. The test includes a 250, 350 and 650, all new, which were run at Ontario Motor Speedway for 24 hours. The test was certified by the AMA.

If one reads the ad, he will find that the total miles covered by all three machines combined was 3,9784.84. The 250's total was 1326—more than one-third!! If the 250 covered more than one third the distance, one or both of the larger machines lost to a 250! Ouch! Oops! One or both of Yamaha's larger machines can't keep up with a 250, which one—or both?

William Richey
Panarama City, Calif.

We suggest that you ask Yamaha about that one.—Ed.

(Continued on page 10)

"Big, steady, smooth power that's real controllable"

Malcolm Smith

New 450cc

The biggest Husky yet, the new 46 horsepower, 5-speed 450cc, tops off the new generation of Husqvarna motorcycles for 1972.

Malcolm Smith, International Six Day Trials Gold Medal winner and 1971 Mexican 1000 front runner who "owns the Baja," prefers it in the close-ratio model. He puts it this way:

"It's real nice because it's predictable. It's big and steady, and has a smooth, even power."

A new chrome moly, steel welded frame places the engine lower and further forward.

"This gives it a lower center of gravity, and puts more weight on the front wheel. That makes it real controllable," Malcolm points out.

Also new is a self-locking transmission that is almost indestructible. On the close-ratio Moto Cross model, there's a new Motoplat ignition system that has no points.

J. N. Roberts, the Desert Fox, prefers the wide-ratio 450cc model. He used it to win the 1971 Barstow-Vegas race for the fourth consecutive year and clinch the No. 1 Desert Plate.

Close-ratio or wide-ratio, make your choice the Choice of Champions. See the new 450cc models now.

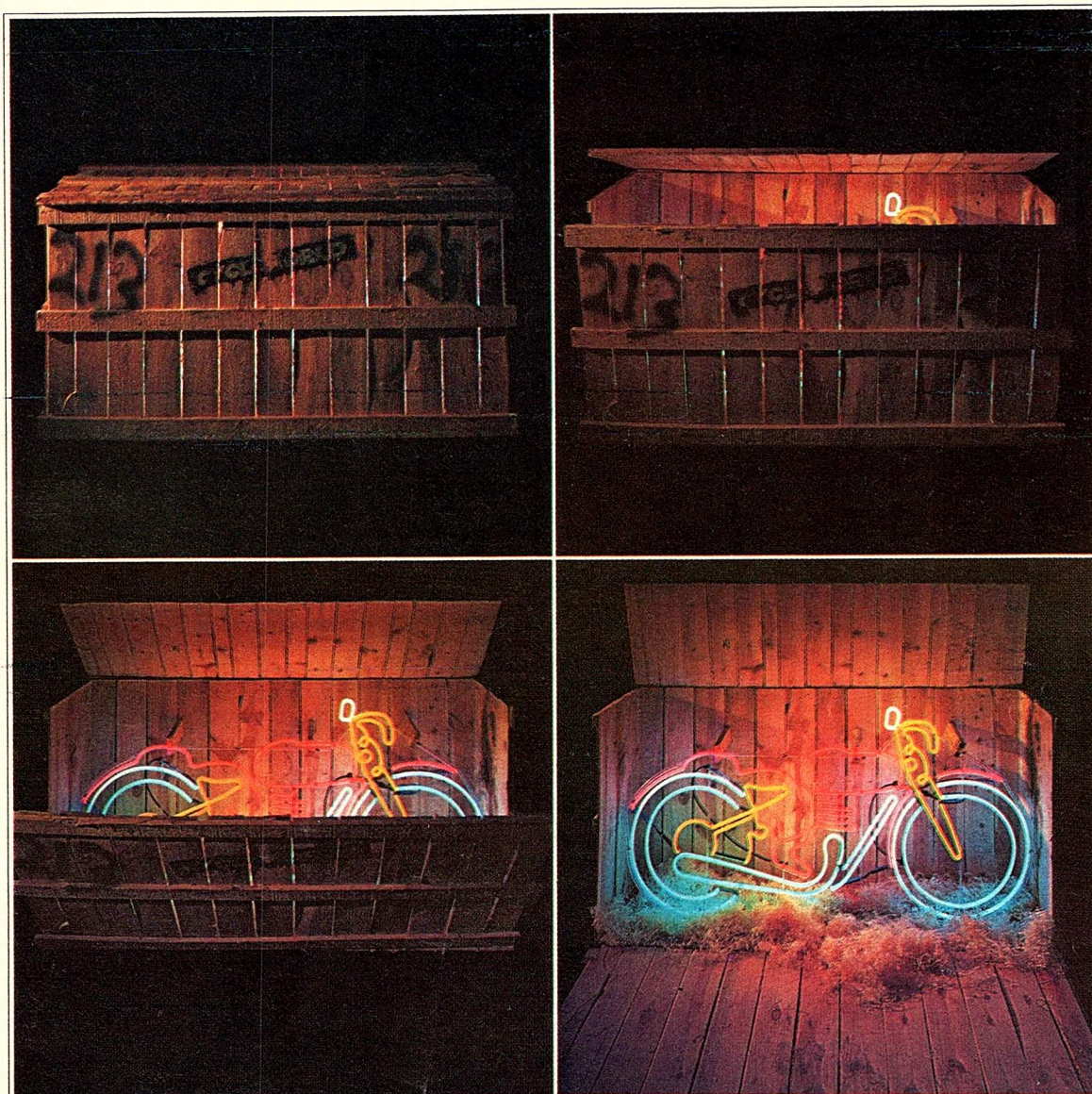


Choice of Champions



Husqvarna Inc.

151 New World Way, South Plainfield, New Jersey 07080



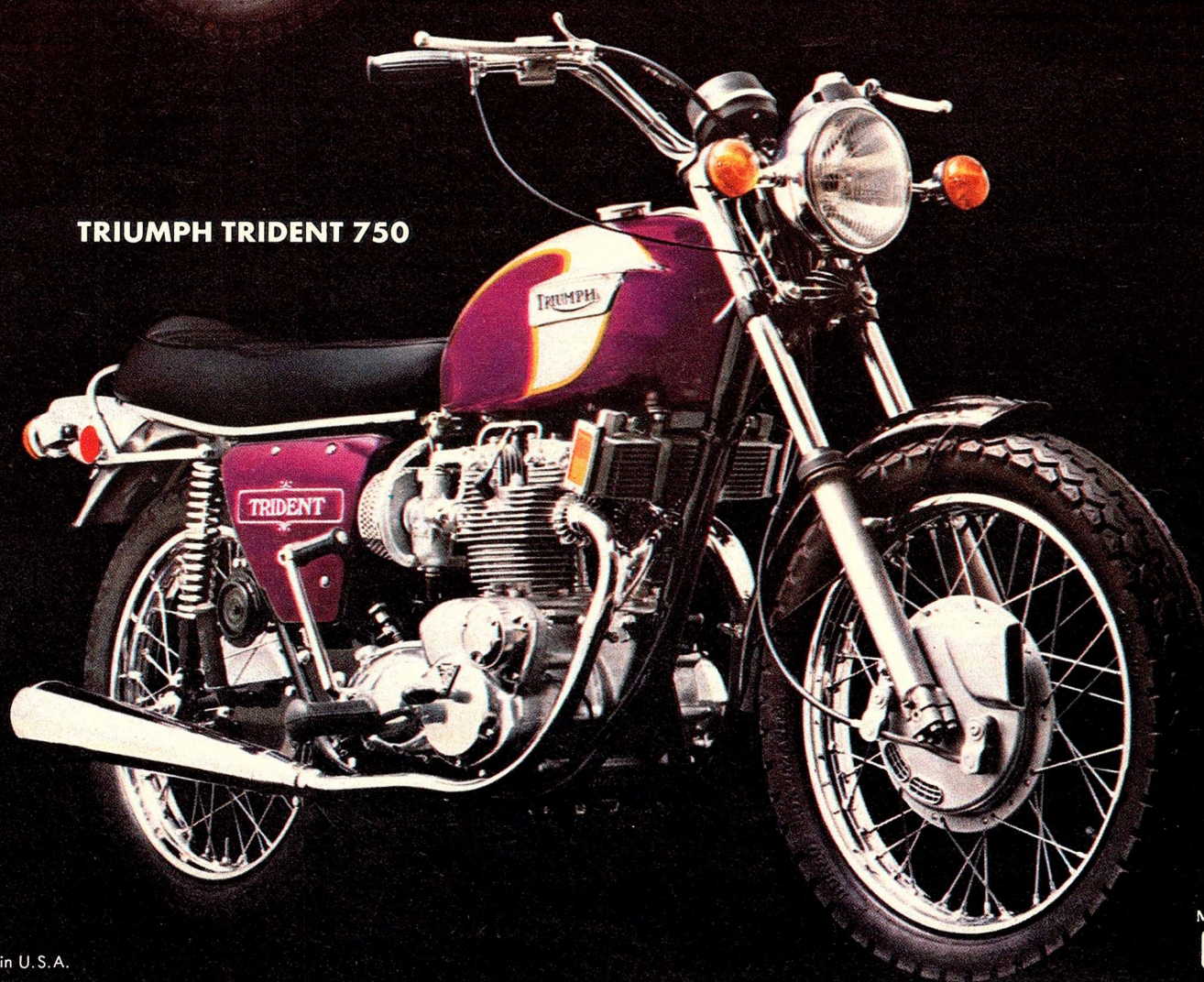
Cycle World packages the world's largest motorcycle show for 1972 L.A. Sports Arena April 13, 14, 15, 16

See competition, customized, classics, choppers and antique bikes plus all the significant 1972 models at the Ninth Annual Cycle World International Motorcycle Show.

EXHIBIT HOURS: APRIL 13, 7:00 pm — 11:00 pm. APRIL 14, 7:00 pm — 11:00 pm.
APRIL 15, 1:00 pm — midnight. APRIL 16, 1:00 pm — 10:00 pm.



TRIUMPH BONNEVILLE 650



TRIUMPH TRIDENT 750

THE HOT ONES: HOTTER THAN EVER FOR 1972.

PRESENTING THE TRIUMPH BONNEVILLE 650 AND THE TRIUMPH TRIDENT 750.

Move out on the Hot Ones, and tell the world to get out of your way.
The 1972 Triumphs have the winning combination of enormous power and pinpoint control.
Whether you choose the Bonneville or the Trident,
here is the fantastic ride you've always wanted—and more.

TRIUMPH BONNEVILLE 650

America's favorite 650—
The Hot One that's heated up even more for '72.
The famous Triumph 4-stroke OHV is fed by dual carbs
for hotter torque and hotter power,
so you can pass with ease, move out on the road fast.
Triumph's special Through-The-Frame Oil System
eliminates the oil tank, cuts down on weight,
teams with an improved capacity oil filter for cooler running.
The Triumph forks, made of lightweight alloys are
stronger than ever, yet cut down the unsprung weight.
Triumph brake hubs are alloy too; they run cooler, stop surer.
Move out on a 1972 Bonneville and see for yourself
why it's The Hot One.

ENGINE TYPE OHV—4 stroke
CYLINDERS 2
MAX. TORQUE 38.5 ft. lb. @ 6000 rpm
BORE/STROKE 71 x 82mm
COMP. RATIO 9:1
TRANSMISSION 4-Speed gearbox
CARBURETOR 2-Amal 30mm conc.
FRONT TIRE Dunlop 3.25 x 19" K70
REAR TIRE Dunlop 4.00 x 18" K70
FRONT BRAKE 8" DLS
REAR BRAKE 7" SLS
WHEEL BASE 56"
GND. CLEAR. 7"
DRY WEIGHT 387 lbs.
FUEL TANK 3½ gals.
OIL 6 pts.

TRIUMPH TRIDENT 750

Here's the Hot One CYCLE Magazine calls "The Quickest Stocker Yet!"
Trident can take any road—or any challenge.
It all begins with the Trident Triple-Threat engine
that teams triple cylinders with triple carburetors.
That combo gets you out on the road fast and smooth,
with 45 ft. lbs. of torque @ 6900 rpm.
The re-designed, heavy-duty front and rear brakes
provide effective stopping.
Race-proven forks of light alloy damp 6¾" both ways
for precision control at any speed.
Large gear-type oil pump circulates oil through the engine
and primary drive with oil being cooled on its return to the tank.
These are typical features of the hotter than ever Trident.
Take a Trident 750 out on the road and let it all out.
You'll see why CYCLE Magazine is all revved up about The Hot One.

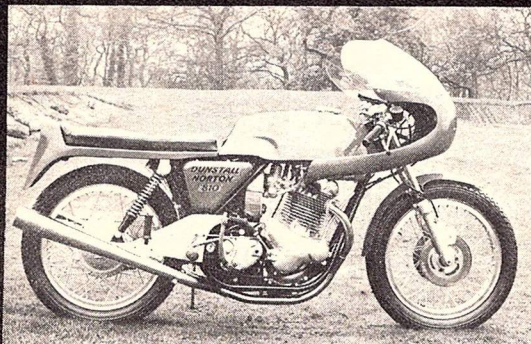
ENGINE TYPE OHV—4 stroke
CYLINDERS 3
MAX. TORQUE 45 ft. lb. @ 6900 rpm
BORE/STROKE 67 x 70mm
COMP. RATIO 9:1
TRANSMISSION 4-Speed gearbox
CARBURETOR 3-Amal 26mm conc.
FRONT TIRE Dunlop 4.10 x 19" K81
REAR TIRE Dunlop 4.10 x 19" K81
FRONT BRAKE 8" DLS
REAR BRAKE 7" SLS
WHEEL BASE 57"
GND. CLEAR. 6½"
DRY WEIGHT 460 lbs.
FUEL TANK 3½ gals.
OIL 7 pts.



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DUNSTALL NORTON 810



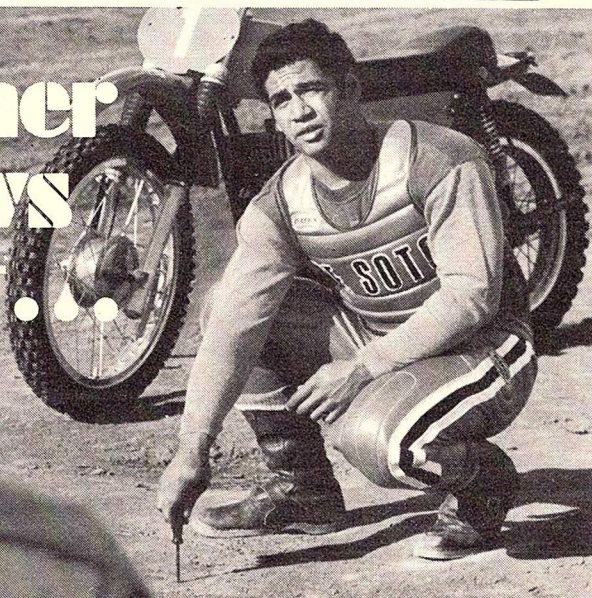
THE HAND BUILT MOTOR CYCLE THAT LEADS THE WORLD

New 1972 Dunstall Nortons featuring Light Alloy 810cc Cylinders, Disc Brakes, Power Street Exhaust System, etc. Three basic models available plus a host of options allow you to choose your own specification. Special Tax Free prices available to Tourists under our Personal Export Service. Send \$1.00 for the Dunstall Norton 810 catalog.

DUNSTALL ORGANIZATION

WELL HALL ROAD,
ELTHAM, LONDON,
S.E.9, ENGLAND.

Teacher knows best...



John De Soto, "the Flyin' Hawaiian," teaches school. Motocross school. And wins Motocross races. And Grand Prix races. He was the first ever to win Elsinore on both Saturday and Sunday. Undisputed as the best American Motocross rider.

In addition to teaching, John has also learned a lot, too. He knows that as hard and as often as he rides he needs the finest motocross leathers available. So he wears Bates. A better grade of leather . . . it's top-grain cowhide. Meticulously selected and patiently processed to be supple and comfortable.

Bates Leathers are custom-made to assure a proper fit and to satisfy

each rider's personal taste in colors, stripes and trim.

Your Bates Motocross Pants will include such features as lining, built-in belt, zippered pockets, leg zippers and a special combination of felt and foam padding for extra shock absorption and comfort . . . the same features John De Soto has in his. John also wears a matching Bates Chest Protector to complete his leather riding apparel.

Whatever kind of riding you do, professional, sportsman, or pleasure, Bates Custom Leathers make it better. Why not take a tip from the teacher!

Send for free catalog and complete information on how to order.

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701 West Cowles Street
Long Beach, California 90801

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Zip _____

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LETTERS

Continued from page 6

ROAD GROOVING SUGGESTION

I've recently read and heard many things about road grooving in reference to motorcycles. Since the grooves are very helpful to four-wheeled vehicles in that they help to reduce the number of spin-outs, I do not believe that they should be eliminated for the sake of the motorcyclist.

I suggest that a center portion of the lane be left smooth for the cyclist to use. At the same time the advantages of road grooving for automobiles could be used. In addition to satisfying all types of motorists, this method of construction would be cheaper than the present method of full lane grooving, as there would be less grooves to mold.

Jeff Stabins
Rochester, N.Y.

TWO-STROKE EMISSIONS

Re: "Viewpoint: The Road Bike in Tomorrow's World" by Dan Hunt in your Dec. '71 issue. It is very eye-opening and also enjoyable, but being a dedicated two-stroke rider I must disagree on one point.

Under the heading "There are Many Variables," Mr. Hunt ends the first paragraph by saying that "two-stroke engines would suffer because of emission greater than that of four-strokes." According to another publication, two-strokes emit no more polluting gases than four-strokes of the same displacement. Who's right?

Dan R. Gooch
Paris, Tennessee

Naturally, we are right. —Ed.

THE CLAIMING RULE

I am curious about the AMA claiming race rule. What is it? How was Bob Bailey able to use it at Ontario and collect \$2500?

Hondo LeGardeur
New Orleans, La.

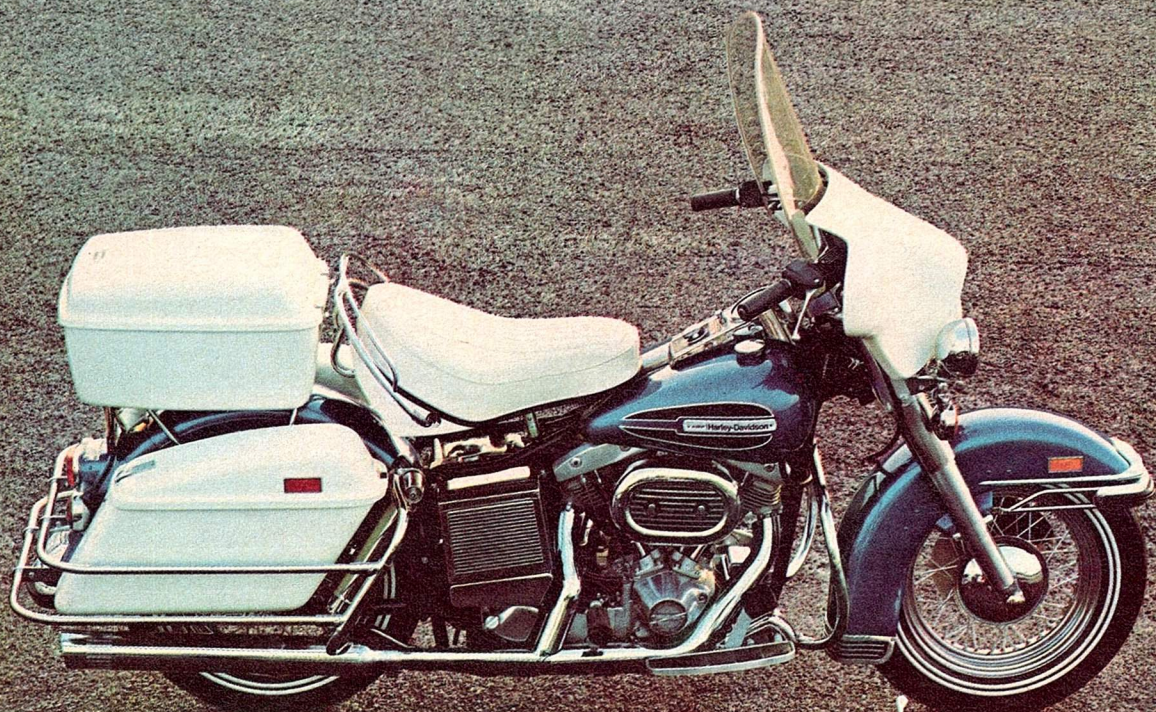
The AMA claiming rule is designed theoretically to put private riders on a parity with factory riders by making it possible for anyone in a professional race to buy the winning bike for a set price. That price was \$2500 for Ontario 1971, far less than the value of the Hele-tuned BSA ridden by John Cooper. The Ontario situation illustrates the rule quite well, for its consistent use by private riders would tend to discourage factories from entering expensive specials, of which only a few copies (and even fewer special parts for them) are available.

Bailey didn't actually collect \$2500. He paid \$2500 for the Cooper BSA. But BSA was so anxious to get the bike back

(Continued on page 17)

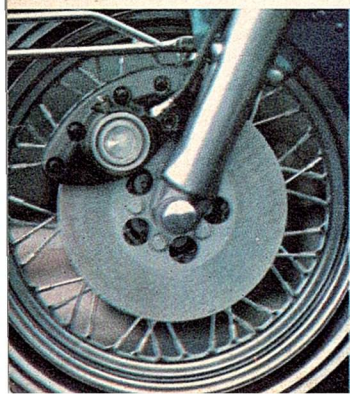
***Harley-Davidson
outperformance...
a matter of record.***





supreme gas.

The road kings... Super Glide and Electra Glide. Smooth, sustained power from the industry's largest production engine. 1200cc's of proven outperformance. On Electra Glide, a hydraulic disc brake up front. Two distinctive machines with a common heritage of the open road.



***the 1972 outperformers
from Harley-Davidson***



power play.

When you think of power, Sportster's on your mind. With a full 1000cc's for 1972. Tough and quick... for the street or the strip. Sportster 1000.

XLCH or electric-start H... two machines that straighten it all out.

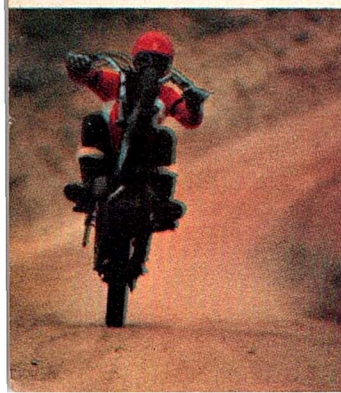
outperformance





direct connection.

There's no neater way to get where you're going. On the road or through the country. A pair of Sprints... the SX, a tough, 350cc thumper that flat hunkers down and pulls when the going gets rough... and the new SS, the road machine with a winning way. Rapido... the 125cc two-stroke with a split personality. And Baja... a 100cc stick of dynamite that blows the big bores off into the weeds.



**the 1972 outperformers
from Harley-Davidson**

spittin' image.

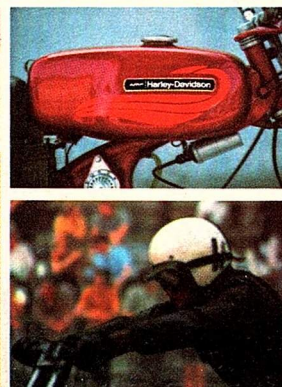


Shortster. The hot new mini-cycle that's mighty like a motorcycle. Powerful 65cc two-stroke engine with integral three-speed transmission, wide-profile tires, full-sized levers and a handgrip throttle just like the big guys. Shortster. The little guy from the Harley-Davidson family of outperformers.

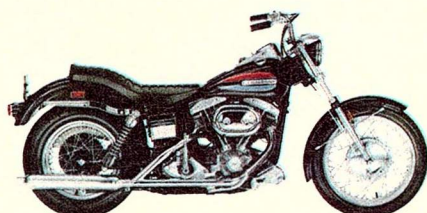


escape mechanism.

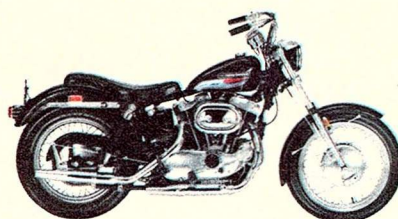
You're on your own with a freedom you only dreamed of. Moving on to places you want to see with people you want to know. Leggero. Your way out of a world you never made.



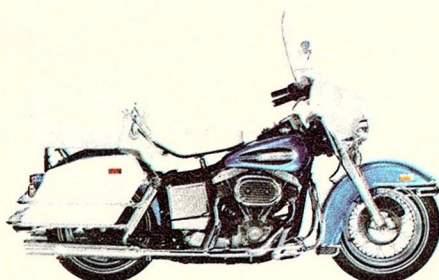
the 1972 outperformers



Super Glide. 1200cc OHV V-twin. 12-volt alternator. Bore, 3.437. Stroke, 3.968. 8:1 CR. Multi-plate dry clutch. 4-speed gearbox. Tires: 3.75 x 19 front; 5.10 x 16 rear. Wheelbase, 62.75" 543 lbs.



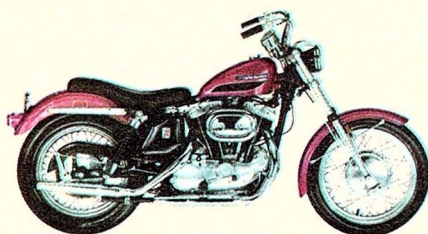
Sportster XLCH. 1000cc OHV V-twin. 12-volt electrics. Bore, 3.19. Stroke, 3.81. 9:1 CR. Multi-plate wet clutch. 4-speed gearbox. Tires: 3.75 x 19 front; 4.25 x 18 rear. 2.25-gallon tank. Wheelbase, 58.5" 474 lbs.



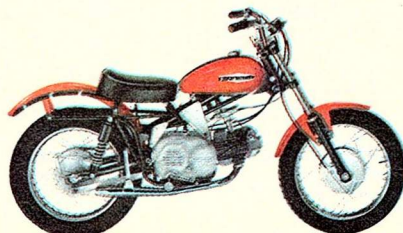
Electra Glide. 1200cc OHV V-twin. 12-volt alternator. Bore, 3.437. Stroke, 3.968. 8:1 CR. Front disc brake. Multi-plate dry clutch. 4-speed gearbox. Tires: 5.10 x 16 front and rear. Wheelbase, 61.5" 722 lbs.



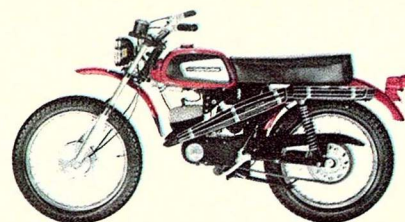
Sprint SX350 and SS350. 350cc OHV single. Bore, 2.91. Stroke, 3.15. 9:1 CR. Multi-plate dry clutch. 4-speed gearbox. Tires: 3.50 x 19 front; 4.00 x 18 rear. Wheelbase, 56.3" 298 lbs.



Sportster XLH. 1000cc OHV V-twin. 12-volt ignition, electric starter. Bore, 3.19. Stroke, 3.81. 9:1 CR. Multi-plate wet clutch. 4-speed gearbox. Tires: 3.75 x 19 front; 4.25 x 18 rear. 2.25 gallon tank. Wheelbase, 58.5" 527 lbs.



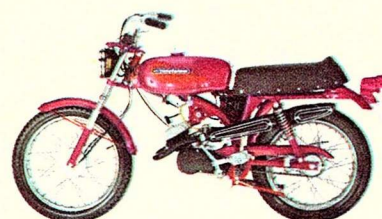
Sprint ERS. 350cc OHV single. 1/2-speed Bendix-Scintilla magneto. Bore, 2.91. Stroke, 3.15. 10.5:1 CR. Multi-plate dry clutch. 4-speed gearbox. Tires: 3.50 x 19 front; 4.00 x 18 rear. Wheelbase, 54" 259 lbs.



Rapido. 125cc 2-stroke single. Bore, 2.21. Stroke, 1.97. 7.65:1 CR. Multi-plate wet clutch. 4-speed gearbox. Street and trail sprockets. Tires: 3.00 x 19 front; 3.50 x 18 rear. Wheelbase, 48" Ground clearance, 6.3" 211.5 lbs.



Baja 100. 100cc 2-stroke single. Bore, 1.97. Stroke, 1.97. 9.5:1 CR. Multi-plate wet clutch. 5-speed gearbox. Tires: 3.00 x 21 front; 3.50 x 18 rear. Ground clearance, 11.7" Wheelbase, 51.2" 212 lbs.



Leggero. 65cc 2-stroke single. Bore, 1.732. Stroke, 1.654. 9:1 CR. Multi-plate wet clutch. 3-speed gearbox. Tires: 2.50 x 17 front; 3.00 x 16 rear. Ground clearance, 5.3" Wheelbase, 44.8" 140 lbs.



Shortster. 65cc 2-stroke single. Bore, 1.732. Stroke, 1.654. Displacement, 3.89 cu in. 3-speed gearbox. Tires: 3.00 x 10 front and rear. Multi-plate wet clutch. Wheelbase, 39.2" Ground clearance, 5.7" 126 lbs.

AMF | HARLEY-DAVIDSON

Harley-Davidson Motor Co., Inc., Milwaukee, Wis. 53201

LETTERS

Continued from page 10

that they gave him another similar machine and refunded him the \$2500. So he got himself a competitive five-speed Trident absolutely free. Smart dealer, that Bailey. —Ed.

SOUND DISAGREEMENT

I am a reader of your magazine and have followed with interest and agreement your campaign for mufflers. Although I understand the need for "less sound, more ground," as the father of three boys who race Sportsman TT and flat track events I must disagree with the new muffling and decibel restrictions which have been imposed by the Sportsman Association because it places the already rare 250cc four-stroke at a competitive disadvantage to the "box ready" two-stroke.

I suggest that four-cycle motorcycles (250cc BSA, Harley, Ducati, etc.) be excepted from the imposed restrictions for the following reasons:

1. 250cc four-cycles will be virtually eliminated from the tracks because of further power loss created by muffling. Two-cycles, as you know, benefit for power, from the type of muffling now in use.

2. Track racing which involves a smaller number of competitors, in a group, as compared to other types of racing, takes place in a small enclosed area, usually remote from residential areas. In addition, since only two or three 250cc four-strokes show up for a large TT or flat track event, how could they collectively make much noise?

3. European motocross and six-days trial competition noise restrictions have been used as an example for us to follow. Why is it we never hear about grass track and road racing which are not restricted and are more similar to our TT racing? Please do not use the lame excuse that in the future they are going to be.

4. With approximately six sanctioned races per season, per track, this type of racing comprises less than 1% of the total hours in a year. Therefore the ears of non-participants will rarely be violated.

5. Finally, I suggest that the muffling of track racers will eliminate the emotional impact to both rider and spectator that is created by the sound of a powerful throbbing engine. After all, isn't that too an integral part of racing? Audiences have complained that the 250cc events are becoming monotonous because they are "ring ding" races. AMA history is full of compromises that make racing interesting and competitive.

Carry on your campaign for "less sound, more ground," but please direct it to the persons who are actually

offending the public. As it is now the bikes that seem to have mufflers are the ones on the track. And the "squirrels" who are running through the woods with unrestricted exhausts are still offending the public.

Would a possible solution be free earplugs for all the residents within a 1-mile radius of a race track?

Friends, Californians, lend me your ears, I come to thrill them, not to.... Somebody just went by with a noisy exhaust on their car. Whom do I contact at Indianapolis to make sure they have mufflers on their racers?

William V. Cherry
Weott, Calif.

ENGINEERING COURSES

Last summer I rode through all the western states talking to people who were interested in our motorcycle engineering courses here at Los Angeles City College. This summer I'm going to visit several schools east of the Mississippi that desire to establish such a program. This time I'll be accompanied by my wife on her bike. We will have been motorcycling through the 48 contiguous states and Alaska.

If any of your readers know of a school where such a program might be feasible, they can contact me at LACC and we'll arrange to get to them on our trip.

The price? Two cups of coffee or two beers, depending on the weather. Thanks for your help.

Don Landauer, Professor
Department of Engineering
855 N. Vermont Ave.
Los Angeles, CA 90029

QUESTIONS AND ANSWERS

I want to ask you some questions. What gave you the idea to give the magazine the title "CYCLE WORLD?" I am 10 years old and I am interested in motorcycles. I like the pictures you have. You also give good articles. I like the Suzuki you have on the cover. When did you write your first magazine? Do you have a motorcycle? If you do, what kind is it? Hoping to hear from you soon.

Tom Hearne
Bluegrass, La.

The answers are: We're not quite sure. January 1962. Yes, we do have several: Bultaco Sherpa T, Honda 750, Bultaco Matador SD, Ossa Pioneer, AJS 250 MX, Ducati 350 Metisse, Honda SL 350, Hodaka Super Rat, BSA Gold Star, Honda CR 93, Zundapp ISDT 100, Montesa Cota, Yamaha DT-1, Hodaka 100B, Suzuki 125, Ducati 450 R/T, and several others. —Ed.

In your Jan. '72 issue titled BSA Victor 500 Trail, I read where CYCLE WORLD tested the 500 BSA Motocross (Continued on page 18)



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Don't settle for less than Super 2! Get it on yours NOW! At your dealer or from us.

[illegible]

Continued from page 17

last spring. Can you tell what issue that was and can I obtain one.

John V. Kazle
St. Paul, Minn.

That test is in the April 1971 issue.
—Ed.

I wonder if it would be possible for you to give me Gary Nixon's national number for 1972.

Paul Metz
Miami, Fla.

Gary Nixon will carry good old No.
9—Ed

Will you please tell me who the distributor for Maico motorcycles is? I live in the Southeast.

Gary Clappitt
Athens, Ala.

The Eastern distributor is Eastern Maico, Royal and Duke Streets, Reedsville, PA 17084.—Ed.

I find your magazine both enjoyable and informative but Dan Hunt's "Viewpoint" (Dec. '71) was the exception.

I agree with D. Hunt that something should be done about space consuming and big engined limousines but why tax mini cars and compact sedans? Everyone doesn't live (which I do) where they can ride a motorcycle year 'round. Even at that he proposes an environmental tax on motorcycles. And the choice between children or a hot car. come on!

As for taxes most people know how hard it is to repeal a tax once it is enacted and how often do they go down. More often than not it will go up (which is what Mr. Hunt wants).

Dan Hunt said he lived in New York for five years. It must have been Madison Ave. His solution to the problem isn't to solve it but to make money from it.

Surely in this day and age we have the equipment and technology to solve these problems in a sensible manner.

David R. Hood
Long Beach, Calif.

Mr. Hunt did not say he lived in New York. Standard registration fees on new minicars are invariably more than \$20, so that another \$25 isn't going to hurt that much. Additionally, we do have the equipment to solve our problems. But how do you propose to solve our problems without money? No choice between children and a hot car, then? Come on!—Ed.

The buttals and rebuttals you folks foster in your letters columns are enjoy-
(Continued on page 22)

For the average price of other 500s, you can get a Suzuki 500. And a few extras besides.

A Suzuki T-500 costs \$899*
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You can really lean it through corners. Because everything's tucked in. And the handling's super-quick.

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To make the best 125 for the dirt you have to make two.

The Suzuki TS-125 on this side is good in any kind of dirt.

But it's best for enduros.

Because it's got a 5-speed gearbox, puts out nearly 10 ft./lbs. of torque and delivers 13 horsepower.

You can get a combination of 15 different rides on it. Because the rear shocks adjust 5 ways and the enduro-type front forks adjust 3 ways.

Trials tires: 19" front, 18" rear. With

bead stoppers—so there's no slipping on the steel rims.

There's a black upswept muffler, primary kick starting, extra protection by a black, steel bash plate.

Front brakes are the enduro kind.

Lubrication is CCI automatic.

And top speed is 70 mph.

It's the best 125 made for enduros.

And would be the best 125 for trails too.

If it wasn't for the 125 on your right.



Suzuki makes both.

The Suzuki TC-125 on this side is good in any kind of dirt.

But it's best for trails.

Because it's got an 8-speed dual-range gearbox. 4 for the trails, kick a lever and 4 new ones for the street.

It'll put out almost 10 ft./lbs. of torque, pump out 13 horsepower and crank on to 70 mph.

You can bust it through any kind of rough stuff. And not worry.

Because it's got a steel bash plate,

almost 9" of ground clearance, primary kick starting and a power-tuned exhaust with a U.S. Forestry approved spark arrester.

There's a big two-passenger seat: in case you want to take along a friend. And a luggage rack: in case you want to take along some trail gear.

It's the best 125 made for trails.

And would be the best 125 for enduros too.

If it wasn't for the 125 on your left.

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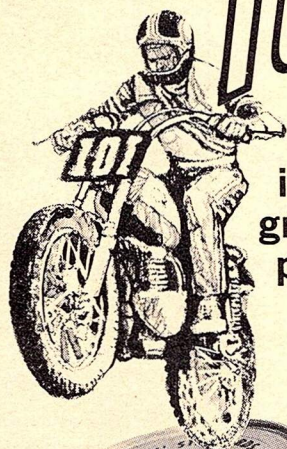
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LETTERS

Continued from page 18

able if a guy can remember what the fuss was about in the first place. The delay, caused by publication lead-times, must be something like communicating with another galaxy; you send the message and your grandson gets the answer. However, you are to be praised for paying attention and persevering. The flow of heated correspondence must finally distill out the sense of the matter, if there is any.

You might advise rebutters to include a historical preface stating the nature of the offense before proceeding to slay the offender.

To wit: In May 1971 or thereabouts you ran a photo of my Cota along with some jollities among which I observed that I had put on a fat seat for my fat behind; that the machine proved very enjoyable for general poking around and trail-type riding; and that some manufacturer could improve the breed by installing a trials engine in an enduro frame. Which Bultaco seems to have done in the new Alpina.

Along comes Mr. A.G. Mattson (Jan. '72) to inquire if I realize that these machines are ridden standing up. Either Mr. Mattson missed my point or I didn't make it adequately, more likely the latter.

Too many riders regard trials bikes as super-specialized toys which will break if ridden faster than 2 mph and which are intended solely for circus acts out among the boulders.

This leads to the eye-popping spectacle of a rider on a trials mount, in the full Sammy Miller crouch, knuckles white and face tense with concentration, hips extended in one direction and shoulders in the other, masterfully maintaining his balance while proceeding across a parking lot.

This view also fails to consider the evolution of the sport of observed trials and the machines developed for the purpose. The Rocky Mountain Trials Association, in their excellent little rules booklet, states the case very well:

"...trials, being a form of competitive trail riding, should consist of difficult sections that could be considered part of a difficult trail ride."

So, Friend Mattson, put your affairs to right because, about July 1972, this here rejoinder is going to be laid on you, boy!

Carl Shipman
Albuquerque, N.M.

POETIC FILM

Realizing I may be a little late, my recent viewing of Bruce Brown's "On Any Sunday," has left me with a strong desire to heap praise on this film and the extraordinary talent that created it.

I saw "Endless Summer" twice and I was ready to go out and buy a board. But after seeing "On Any Sunday," my personal and difficult to express reasons why I ride a bike were crystallized, not necessarily in the narration but in the poetic film technique.

Glenn Garrett
Tijunga, Calif.

COMPREHENSIBLE

Your article on compression ratios was a welcome relief. Technical, yet comprehensible, it filled one of the many empty spaces in my overall understanding of bikes. I hope that more articles of this type will be published in the future.

Harry Steinman
University Park, Penn.

MUFFLING UP

I wholeheartedly agree with Clark K. Campbell (Letters, Dec. '71) that MIC member enthusiast magazines (and especially CYCLE WORLD, which is the leading magazine) should use mufflers on all their test bikes, and require ads to include mufflers. I also agree that the riding public should be kept informed of pending and passed legislation. This is not too much to ask, because if motorcycles are outlawed in the future, the enthusiast magazines and the industry will be the hardest hit.

I, myself, have put a muffler on my trailbike and urge that other riders do likewise.

Sam Stalnaker
Portland, Ore.

STAYING WHOLE

As a biker of many years' experience, I came to the conclusion that I should wear boots and heavy leather jacket, as well as helmet, when riding. So I was fairly well protected when I hit loose sand in a corner with my 750 Norton about a month ago. How fast I was going, I don't know (the whole thing is a blank), but the police report says I skidded 288 ft. from where I went down.

Body damage? A cut on my nose from glasses (hardened glass, which did not break), a cut chin, the backs of my hands scraped (no gloves), one knee beat up a bit (heavy denim pants). The helmet was scraped and chipped, the face plate and jacket sanded, as were the boots. But I was up and going the next morning!

Lucky? Very much so, but a good part of luck is preparation. That helmet and jacket have been miserable wearing a few times, but when I needed them, they came through.

To anyone who doesn't like to wear helmets, or rides with helmet and a pair of shorts and tennis shoes, ask yourself what you'd look like 288 ft. of asphalt later.

(Continued on page 24)

Suzuki gives you two ways to get around town. And competition. The T-250 and T-350.

Either one is enough to give competition fits.

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The T-250 and T-350.

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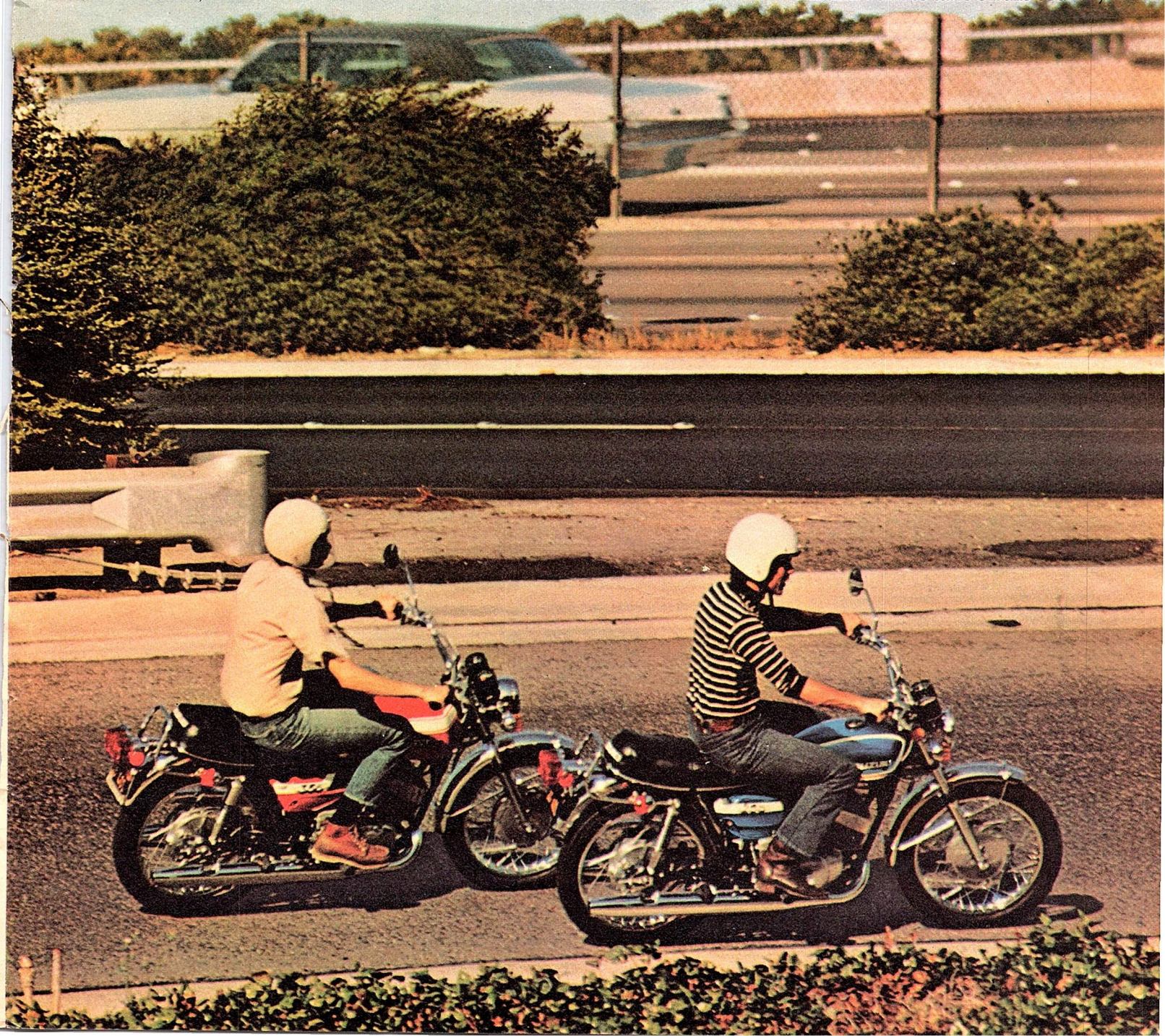
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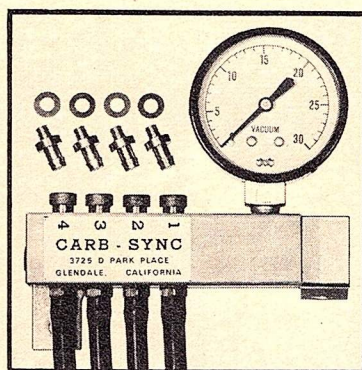
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LETTERS

Continued from page 22

Love the way CYCLE WORLD pushes helmets. A good rag I'll keep buying.

Rick Forrister
Fairchild AFB, Wash.

FBI SHOW'S BUMMER

I am really mad! I was just watching an American show called "FBI." I don't know whether you receive it, but it enjoys a fairly large distribution in the central Canada and northern States area. It is a highly moralistic show where criminals, no matter how small, are caught and punished for their crimes. Generally, the show has reasonable entertainment value, and it is not unusual for me to watch it, 'til now. Tonight's episode was of a discontented soldier, a topical enough subject, but the writer chose to throw in a little extra which may cause me never to watch the show again. In the latter part of the show, a girl hostage escaped from a desperate fugitive (the soldier) and crawled out of a window to meet a tall, clean-cut, nice-looking guy. She explained her problem to him and he kindly told her not to worry, he would personally take her to the police. He then walked over to a Harley chopper and, through a subtle shift of music, you knew something was wrong. The bike was spotless, shining from multiple coats of wax, but already you knew the good old cyclist was really a bad guy. He put on a brand new helmet and smiled as two of his buddies pulled up on two trail bikes sounding like a convention of mufflerless lawn mowers. No doubt about it, it was a "gang bike." Instead of taking the poor girl to the police, the leader forced her to tell where the soldier was going, as they were after the jewelry he stole. They chased him and when he set out on foot through some badlands, they all pulled guns and started a battle. Then the FBI arrived and the cyclists either fell off their bikes trying to get away, or threw their hands in the air.

My point: What can we do to fight such international, well acted, living color, anti-bike propaganda? Blows against us like this must not go unheeded.

J. Stevenson
Ottawa, Ont., Canada

THE DESIGN CONTEST

First, let me thank you for your comments on my entry in the Project Future Bike contest in the October issue. (My wife appreciated it also.) Let me also say, however, that we both feel I was robbed!

I feel that most of the criticism of my entry was invalid; "... too exotic

(Continued on page 28)

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For Suzuki CCI Oil Injection systems.

The only two-stroke oil that's specially designed and blended to perform more efficiently in your Suzuki engine.

CCI's special formula delivers at high rpms. It resists thinning at high engine temperatures.

It gives greater lubrication at high and low rpms, it helps achieve complete combustion: so your Suzuki runs more efficiently.



It reduces spark plug fouling, ring sticking, piston seizure, excessive wear and carbon deposits.

And if that's not enough, it lubricates too.

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12 different models in all.

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TM-400—230 lbs. of pure motocrosser. Strictly for the experts.

TS-400—85 mph, 34 horses. Fastest dirt bike you can ride in the street.

TM-250—Production version of the 2-time world champion Suzuki 250 motocrosser.

TS-250—Cycle magazine tested six 250 enduro machines and rated Suzuki best.

TS-185—17-1/2 horses, lots of torque and 5 speeds. King of the mountain.

TC-125—Eight speeds—trail or street. Gutter performer.

TS-125—13 horses, super-quick reflexes. No other 125 for enduro-riding can touch it.

TC-90—Eight speeds make it a street & trail riding wonder. Take you anywhere. Finish first.

TS-90—11 horses, 5 speeds. King of the lightweight enduro-riding bikes.

RV-90—A new breed of all-terrain vehicle. Goes anywhere you point it. Any time. Any place.

TS-50—Only enduro-styled 50 you don't have to be a kid to ride.

MT-50—No other minibike can touch it. In performance or looks.

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FOR THE BEGINNER OR THE EXPERT

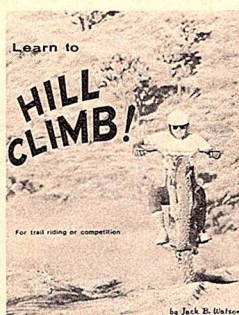
COW TRAIL OR COMPETITION

Fundamentals & advanced techniques

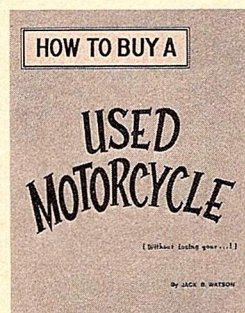
with many photos. —

Proper riding stance — What to do: when the front end goes up — when engine bogs down.

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I have enclosed:

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Californians must add 5% sales tax. Allow 3-4 weeks delivery or add 50c for each book for 1st class mailing. I understand my money will be refunded if not completely satisfied.

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LETTERS

Continued from page 24

and esoteric..." are just words to me. Let me point out that that motorcycle was designed for 1985, 14 years from now. Let's see...14 years ago was 1957. In 1957 would you have believed the Honda four-cylinder 750 street machine? With hydraulic disc brake yet? Hell no! In 1957 a few sports and racing cars had disc brakes, and at that time they were believed prohibitively expensive for use on most production automobiles. As for "esoteric" (meaning: understood by or meant for only a few specially instructed or initiated individuals)...does not this word apply to motorcyclists in general? For example, would you not describe a Husqvarna 400 MX as "esoteric," as few people can really handle its full potential? And is there not room for machinery of this sort? Many people would love to own an MV four-cylinder or a Munch Mammoth.

I felt your "too heavy" criticism might be valid, but, as I stated in my entry, the weight of the engine could be reduced through the use of light alloys; motorcycle engines have always delivered more hp/lb. compared to automotive engines. The engine must run at low revs?—4000 rpm is too slow? Why do you say that? The hydrostatic transmission is too exotic and expensive to build commercially?—Oh, yeah? Is that why one large company is building them now for garden tractors? In 1957, which production motorcycle can you think of had a five- or six-speed transmission? Yet quite a few possess them today. No, I do not think my entry was terribly far-fetched. I felt it was an entirely possible extrapolation into the future. As further proof and evidence that someone is thinking the same way I am, I have enclosed a clipping from the September 2, 1971 issue of *Machine Design* magazine.

Further, I would like to criticize the judge's decision of the winner:

1. The rules specifically stated that the motorcycle would have to be rideable if it were built. You stated in your article that, as designed, the bike could not be ridden.

2. By your own admittance, it lacks a radiator—probably a necessity, as designed.

3. My feeling, as an experienced engineer who has worked with structural aircraft plastic parts (and honeycomb/sandwich metal bonded parts) and with stress analysis, is that the frame will not last very long and will probably not provide sufficient rigidity as designed.

4. My purely personal feeling is that the bodywork looks dumb. I didn't like the attempt (on the red bike) to make it

look like a rear-engine racing car. It probably would look ridiculous if seen in reality. (I did like the sketch of the bike shown with the rider, however).

5. To me, his design would have made more sense if he had placed the rider in the prone position.

I probably sound like sour grapes, but that's just the way I feel. I did think that all the entries shown display remarkable, beautiful artistic talent. I wish I could have done color renderings half as beautiful.

My particular favorite and the one which I felt should have won by the judge's criterion (as evidenced by their decisions and criticism) was the beautiful road racer designed by James Parker.

Anyway I just had to write to get that off my chest.

Mike D. Savin
San Diego, Calif.

THE BLACK HILLS

First, I would like to thank you for your coverage of our 31st annual Black Hills Motor Classic. In your article your reporter related on our track conditions. We too were concerned about the dusty conditions. However, we do have a problem as the track is used only once a year, and this is not conducive to good track conditions. Hopefully for 1972 we will have this problem eliminated.

Secondly, your reporter talks of the \$200 paydays. For your information, the Jackpine Gypsies paid a total of \$1327 prize money for our professional short track. My records show National No. 76, Charlie Seales, made \$360 at the Saturday night short track and \$448.30 at the Saturday and Sunday afternoon professional half mile; total \$808.30. I would say a far cry from a \$200 payday! By the way, there were a LOT of motorcycles there.

Just wanted to set the record straight. Once again, thanks for the coverage of the event and feel welcome to come back in '72. We would also like to thank all the cyclists who help make this event the success that it has been and promises to be in the future.

Bob Moore, President
JACKPINE GYPSIES
Sturgis, S.D.

JUMPER LOOKS FOR SPONSOR

I am 20 years of age and I am looking for someone to sponsor me on motorcycle jumping over cars. I can do five cars now, with a 175E Kawasaki, and all jumping has been on my own.

I am working in the state of Washington, so I will be unable to jump without a sponsor. I plan to be a professional jumper eventually, so I do take jumping very seriously.

Paul Vigil
9222 N. Lombard, Apt. 5
Portland, Ore. 97203



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So if the humans err, the machine corrects it. And vice-versa.

It's a little tougher that way. But then, so are the bikes that pass the course.

After we build the prototype, we test it.

We've got 1400 acres in Hammamatsu, Japan for that. And we push every machine to its limits. In every way we know how.

Which is why we can offer that long a warranty. If a machine can beat Hammamatsu, it can take any beating you'll give it.

Building a Suzuki is equally tough. Because for every three workers there's one inspector.

And even some inspectors to inspect the inspectors.

And they never look the other way if something's wrong.

Suzuki engines, for example, are assembled by hand. Which is one reason we can warranty all the internal parts of the engines, the blocks, even the transmissions: we know they're tough.

Everything's put together carefully.

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You pay good money, you should get a good product.

And one way to tell before you spend the money is to check the warranty.

No one gives you a longer one than us.

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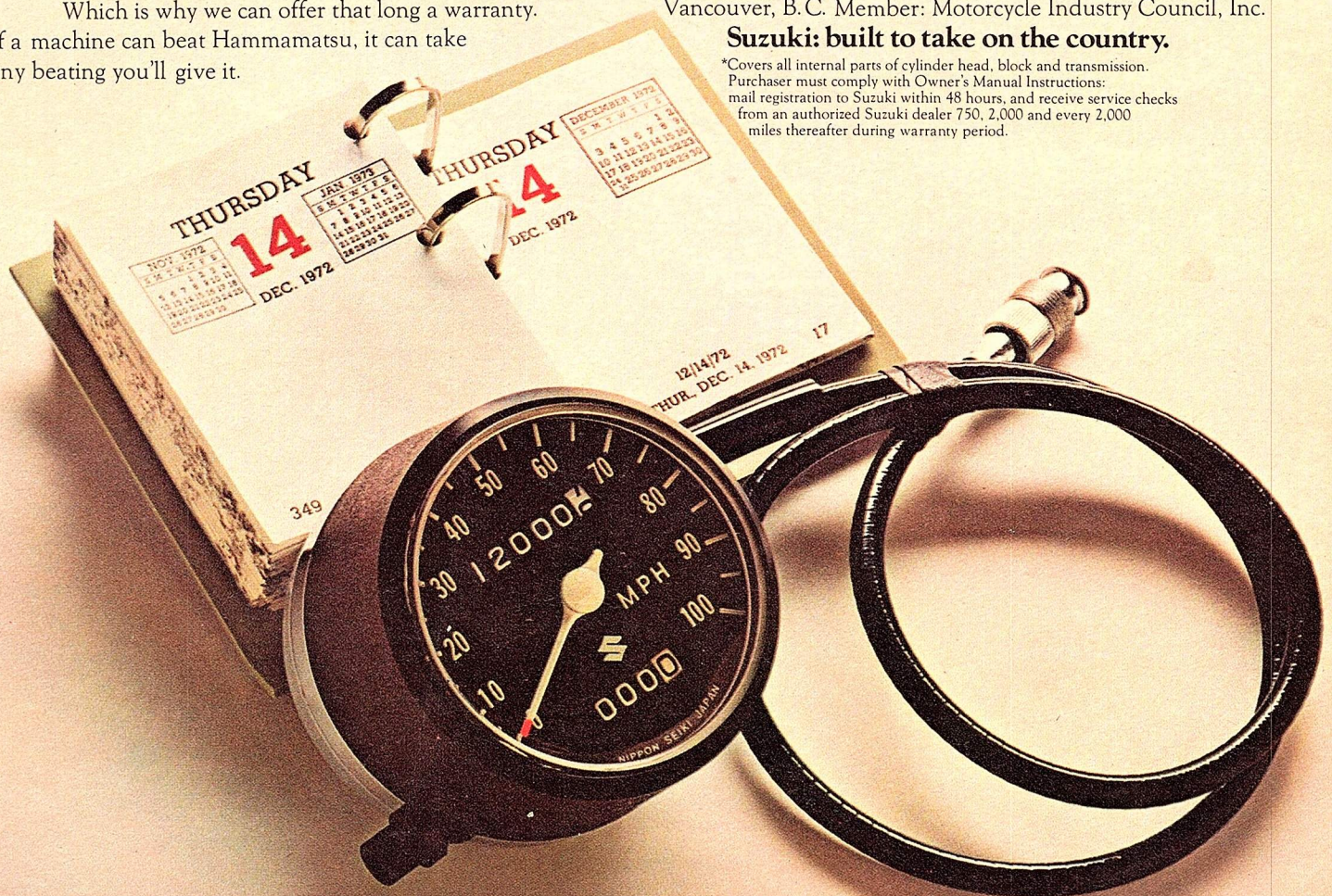
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THE SERVICE DEPT

BY
JODY
NICHOLAS

POWER AND SPEED?

I am stationed in Rota, Spain, with the U.S. Navy. I've owned my 1971 Triumph Trophy 650 since May of 1971 and have been contented with my purchase in every way but one. I bought it with the thought in mind that I would use it mostly as a trail bike on "fire trail" type ground; this was my mistake though, because I haven't found any such territory around worth spending the time to travel over. Instead, I have used it strictly as a road bike. Being that the Trophy has a different size gearbox sprocket than the Triumph Tiger and Bonneville, its engine and power are being wasted on the road. I would like to convert my Trophy to a road bike

like the Triumph Tiger 650, thus enabling me to reduce engine wear and put the power this engine can produce to use.

The Trophy has the same size rear sprocket (47 teeth) as the Tiger, and I think that if I could change the rear sprocket, it would solve my problem. I don't know, though, if my rear hub will take a different size sprocket, and I would like to avoid, if possible, tearing into the gearbox.

Which sprocket should I change for the most beneficial effect, giving me both take off power and higher top end? How many teeth should this new sprocket have to give me the effect mentioned above? How much, if at all, should the chain be shortened? If logical common sense wouldn't tell me, would you give a breakdown of the procedure?

Timothy W. Stone
Rota, Spain

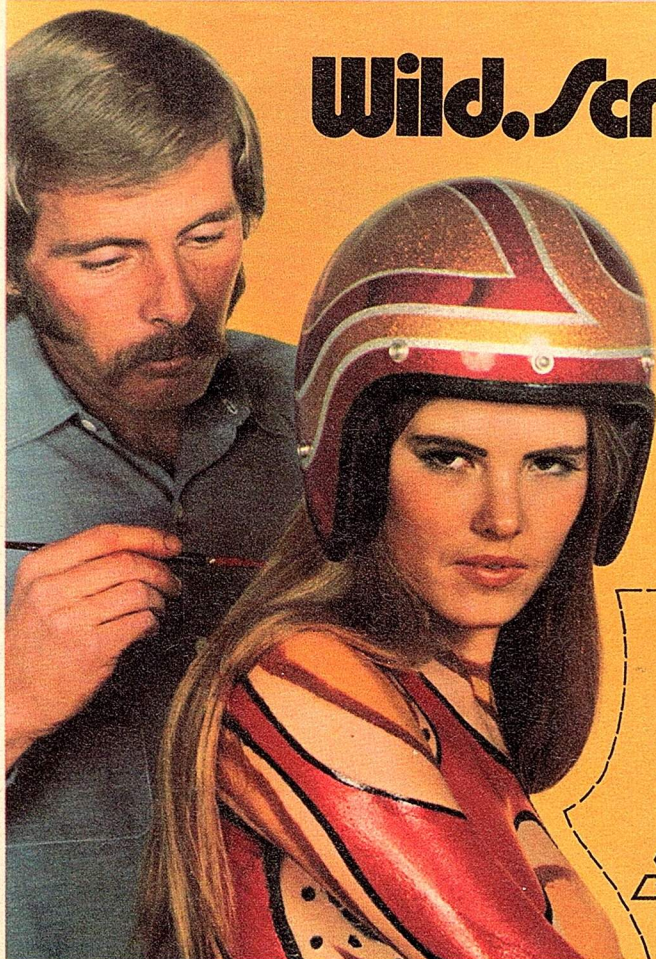
Triumph has three Trophy models that are sold in the United States, the TR-6, TR-6R and the TR-6C. From your description I assume that you have a TR-6C with upswept exhaust pipes and probably Dunlop trials universal pattern tires.

The TR-6 and TR-6R models are fitted with a gearbox (countershaft) sprocket having 19 teeth and a final

overall gear ratio of 4.96:1 (with a 47-tooth rear sprocket) in top gear, whereas the TR-6C has an 18-tooth gearbox sprocket and a final overall gear ratio of 5.31:1. Using a hypothetical tire size (which should closely approximate the size of your rear tire) and computing the top speeds of both gear ratios at 6500 rpm where maximum power is produced, we find that the bike geared 4.96 will run 98 mph and the one geared 5.31 will trip the lights at about 92 mph. Not much difference, is there?

The 47-tooth rear wheel sprocket fitted to your machine is just about as small as you can go, using the standard brake drum, and the other alternative is to change the gearbox sprocket from an 18-tooth to a 19-tooth. In order to change the gearbox sprocket you will have to remove the primary chaincase, the alternator assembly and the clutch to get at the "gearbox sprocket detachable cover" which will have to be removed to expose the gearbox sprocket. In order to do the job properly you should have Triumph special tools, part number D1861 (clutch hub extractor) and part number Z36 (gearbox nut box spanner). These tools are found in Triumph service shops here in the U.S. but they may not be available to you in Spain. Also, you may find it

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difficult to locate a gearbox sprocket there and would have to order one from a Triumph dealer in England, most likely.

Changing from a small countershaft sprocket to a larger one will give slightly more top speed and more relaxed cruising, and a smaller countershaft sprocket will give more acceleration at the expense of reduced top speed. The gearbox sprocket that is most suitable for the purpose your Triumph was designed for is the standard 18-tooth item. If you think it's worth the trouble to change the gearbox sprocket for a nominal 6mph increase in top on how to port this two-stroke? for normal touring in Spain, I'd leave the gearing the way it is.

BIG AT-1

I have heard that someone manufactures a 200cc kit for the Yamaha CT-1. I now have a AT-1 that I would like to enlarge. I feel that the drivetrain will handle the 175cc kit that is available, but I wonder about the larger kit. The transmission seems strong (no problems in 7000 miles).

Do you feel that the AT-1 drivetrain could handle the 200cc kit? Do you know who markets this kit? Also, do you have any publications on how to port this two stroke?

R.S. Kistler
Rolla, Mo.

I don't know of anyone making a kit to convert an AT-1 Yamaha to 200cc, but the 175cc Yamaha cylinder and head will bolt right on to the AT-1 crankcase with no modifications. Because the CT-1 piston assembly is larger and heavier than the AT-1 assembly, the engine's balance factor will be changed somewhat, but not enough to warrant having the crankshaft rebalanced unless you plan on high rpm racing as a steady diet for the machine. The point of maximum vibration in the rev range will be changed somewhat, but the overall vibration shouldn't be much greater than it is now.

You will find that the electric starter will be reluctant to spin the engine over with the CT-1 top end installed, but installing a compression release and then using it when starting the engine will obviate this problem.

Porting a two-cycle engine is not a particularly complicated process, but it does require more than a hammer, chisel and a rattail file! Several special tools are required to do a first-class job, not to mention the knowledge of where to remove metal from the cylinder wall and/or piston. It's best to leave this operation to a specialist.

CYCLE
SEE WORLD
CLASSIFIED, PAGE 147

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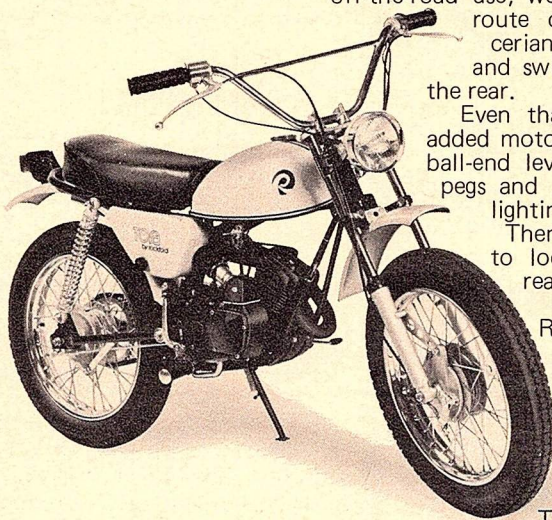
And because we designed Tora for off-the-road use, we went the whole route on suspension: a ceriani-type front fork and swing arm/shocks in the rear.

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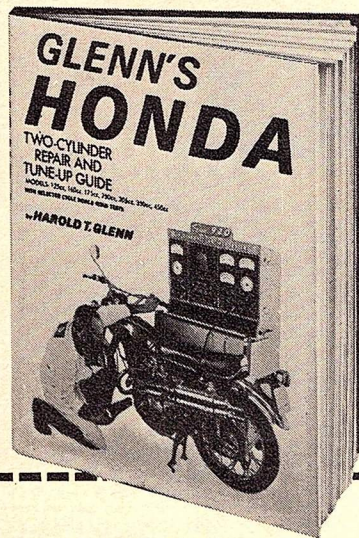
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FEEDBACK

Readers are invited to have their say about motorcycles they own or have owned. Anything is fair game: performance, handling, reliability, service, parts availability, funkiness, lovability, you name it. Suggestions: be objective, be fair, no wildly emotional but ill-founded invectives; include useful facts like miles on odometer, time owned, model year, special equipment and accessories bought, etc.

'71 BSA 500

I am writing concerning my motorcycle and my dealer. First, the bike. It's a BSA Gold Star 500cc, 1971 model. I purchased it in September and as of this writing (in mid-November) it has 500 miles, 300 of which were used in trips back and forth to the dealer. I have had eight days use of the bike. It leaks oil everywhere, has gone through two batteries, a transmission mainshaft, a starter gear, has holed the gas tank with an engine head bolt, vibrates like crazy and all the red paint is so faded that it looks milky white in places. The motorcycle has become a standing joke among my Japanese-mounted friends. The dealer has a tough time getting parts under warranty for the bike; three weeks were consumed waiting for the mainshaft until I called BSA in Maryland and a batch mysteriously arrived that day.

The dealer is Northwood's Tire & Cycle Service in Jacksonville, N.C. They're great. They aren't the biggest in the world nor do they have the best of everything but the attitude and desire of the owner, Fred Silvia, more than overcomes these shortages. He has picked up the bike twice for free at a distance of 50 miles, kept me informed of what's going on and in general gave the BSA much better support than BSA of America has. If I didn't have this dealer, the motorcycle would be permanently unusable. Bad marks for BSA and its product; bravo for Fred Silvia.

Alan P. Sullivan
Havelock, N.C.

MUFFLER CRACKS

One month after the expiration of my warranty my 750 developed cracks along the welded seams in the mufflers. The dealer referred me to his service manager who said "Sorry." I tried to

obtain some satisfaction from American Honda in Atlanta, who referred me back to the service manager. After another "Sorry" from the service manager, I purchased another set of exhaust pipes, all four of them.

Needless to say, I've purchased my last Honda, thanks to American Honda and Honda of Marietta.

Henry J. Sluss
Smyrna, Ga.

GETTING IT "RIGHT"

I would like to mention a few Kawasaki dealers who I have had the pleasure of dealing with. "Crossroads Cycle" in Fairfax, Va., supplied me with my new Kawasaki 500 as well as uncomplaining and fast warranty service. "Amherst Sales and Service" in Kingston, Ontario, Can., has to be one of the best dealers I have ever seen. They do excellent work and serve as a great source of friendly information. Also I think that "Moto-Michel" in Quebec City, Quebec, Can., deserves special credit. I stopped by this dealer while on a trip, at lunch time, to have an ignition problem repaired. My alternator rotor had gone. The trouble was immediately repaired (during a mechanic's lunch hour) and the work (worth about \$70) was honored under a warranty that originated over a 1000 miles away in Virginia.

Now, about my bike, of which I am extremely fond, as is any cycle "nut." I own a 1971 Kawasaki 500 which I purchased at the beginning of last summer and now have put on over 14,000 miles. I have been extremely pleased with my bike's all-around performance and I have effected several modifications on it that may be of interest to other owners.

I initially purchased the bike because of its low price and high performance. But I found that I wanted a better handling bike. The stock 500 when banked over hard (pegs grinding) in a bumpy corner tended to wallow. It felt like the bike was flexing. The first thing I did was to drain the stock "fish oil" out of the front forks and replace it with 30W Lubri-Tech racing fork oil. Then I installed several large washers inside the front forks, on top of the springs (large enough so that they wouldn't fall inside the springs). This allowed a stiffer pre-sprung front end that was very "tune-able" over a limited range. I played around with the tuning until I ended up with just under a 1/2-in. spacer. Along with this I installed a hydraulic steering damper, an inexpensive Kawasaki accessory.

These first two modifications made for a somewhat stiffer ride at slow speeds, but much more controllable at high speeds, particularly in bumpy corners and windy weather.

(Continued on page 38)

COLOR IMPACT FROM CYCLE WORLD



CWP 3 Phil Read takes his Yamaha around a fast sweeper at the 1970 Dutch Grand Prix.



CWP 4 Germany's Sig Schauzu and H. Schneider in their BMW sidecar rig during 1970 Isle of Man.



CWP 6 Renzo Pasolini and his four-cylinder 250cc Benelli during Dutch Grand Prix in 1969.



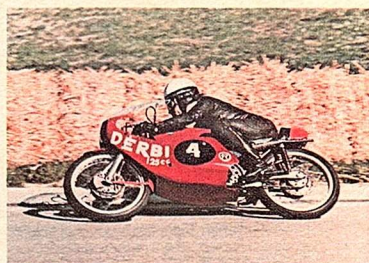
CWP 9 Agostini, caught in a sweeping curve at the 1969 German Grand Prix, Hockenheim.



CWP 19 Kent Anderson flying through a high-speed curve on his Yamaha.



CWP 20 Another brilliant Joel Robert show on a Suzuki.



CWP 21 That's Angel Nieto at speed on his fiery red Derbi 125cc machine.



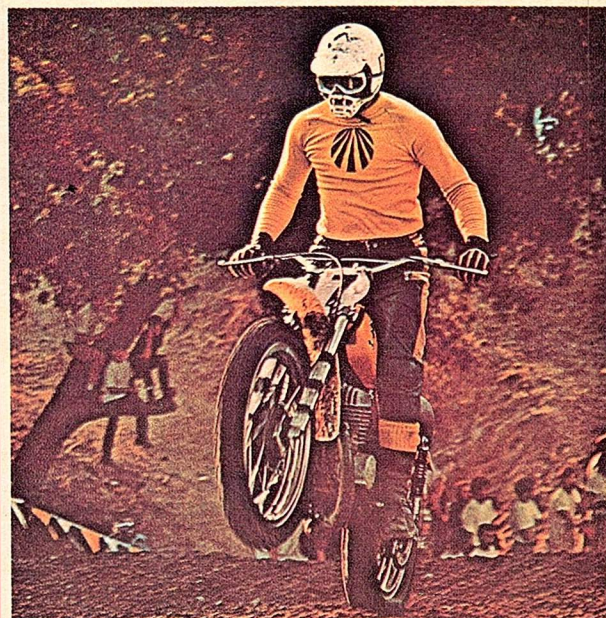
CWP 22 Phil Read (203) and Rod Gould (201) battle onto the straightaway.

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CWP 18 Huge (2½ by 4 ft), full-color study of Joel Robert taking to the air during Trans AMA race at Saddleback Park. Printed on heavy, coated stock in fade-resistant four-color process.

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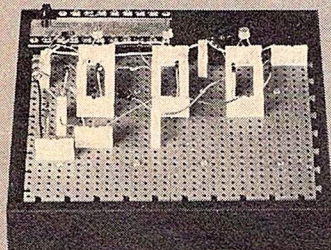
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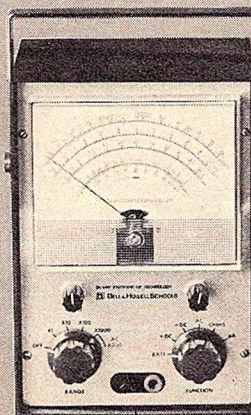
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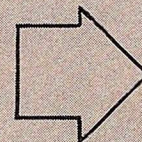


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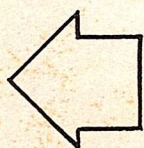
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"FEEDBACK"

Continued from page 32

Next I purchased a set of the famous Koni shock absorbers along with two Girling 70/100 progressive springs. These items bolted on in place of the very poor stock rear shocks with virtually no modifications. The Konis took a little time to break in and then to "tune" to my bike. Once finished, I was amazed at the final improvement in handling.

I have yet to induce any type of wobble or flexing in any kind of corner or at any speed, since these modifications. On my favorite test road (like every cafe racer has) I had a sweeping, bumpy, high speed, left hand corner. I found that I could go through this corner up to 10 mph faster than I would have attempted before.

Having solved my bike's handling ills (and for the low price of about \$70), I started to examine ways to improve the front brake. The stock brake was adequate for normal speeds around town. But when brought up to the bike's capable (illegal) speeds, the brake proved less than satisfactory. Under hard braking from about 100 mph, the brake would fade badly; by the time 40 mph was reached it began to feel very

much like a sponge. I felt that most of this problem was due to the fact that this particular type of lining reacted adversely to heat. The solution, of course, was to cool it. I did this by venting the left side of the brake drum with six 2-in. diameter holes, with small (1/2-in.) vent through holes on the other side. The venting does not appear to affect the structural rigidity of the brake, as the majority of the strength lies in the six large internal structural "webs" that were left untouched.

The result was a definite improvement in braking. I found that I could brake hard from 100 and then lock up my front wheel at 70 with a 2-fingered tug. I was curious now to see what would happen in the rain. Before I vented the brake, I found that I had to use it constantly in the rain to keep it dry, as it was not at all waterproof. With the venting there was no noticeable difference.

The next thing I installed on my bike was a partial racing fairing. I put this on for several reasons: 1) it kept me somewhat dryer and warmer in rain and cold, while not looking as ugly (in my opinion) as a touring fairing; 2) improved gas mileage and top end; as well as, 3) improved appearance of the bike.

The fairing, of course, necessitated "low" bars. I personally prefer riding with the flat bars rather than normal

high bars. I find the fairing very comfortable at high cruising speeds. It does improve gas mileage from 5 to 15 mpg at high speeds (75-85). It also appears to improve top end, although I have not been able to verify this. The fairing does not significantly affect anything until speeds in excess of 60 mph, after which the bike definitely feels a little faster, albeit part of this may be psychological. The bike is definitely much more stable after 90 mph now.

Last on the list, I mounted a Carello quartz halogen driving lamp below the fairing. Although the stock headlight is quite good, the quartz light is absolutely fantastic. I have wired it through the turn signal switch (there are no turn signals) so that I can switch from high beam to quartz beam. For riding long distances at night this light is indispensable, but illegal in some places.

I rode my bike thus equipped from my university in Ontario, Can., to my family's place in Virginia several times last summer. I also made a 3000-mile trip with a friend (who has a 350 Honda) to the Canadian east coast. I found my bike to be an excellent touring machine and very reliable.

My only complaints lie in some rather obvious areas, all of them arising from the bike's power. First it goes

(Continued on page 40)

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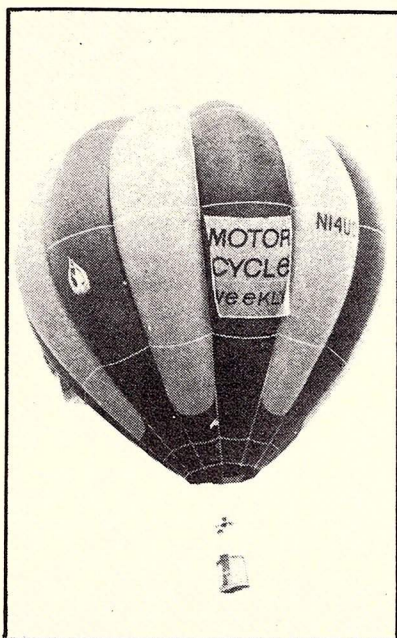
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"FEEDBACK"

Continued from page 38

through chains and tires very rapidly, despite care. I must admit, though, that I have a very active throttle hand. And I found that the bike has a tendency to "eat" rear spokes if given full throttle on very bumpy roads. This last problem I solved by not opening the throttle on bumpy roads.

I feel now that I have one of the faster, better handling bikes on the road, along with the good fortune of excellent dealers.

Mark Mills
Kingston, Ont., Can.

CANADIAN vs. AMERICAN

I was stranded at the Canadian-New York border with a blown piston late one Saturday afternoon. The telephone book had two cycle shops listed—one 20 miles south in New York, the other 35 miles northwest in Kingston, Ont., Can. The dealer in the U.S. laughed when I called and he flatly refused to help me. So I called Whitaker Cycle Sales and talked to the manager, Gerry Apps. He said he would be there as soon as possible. After we got my bike back to town, Gerry unsuccessfully looked for a place for me to stay. He insisted that I stay with him and his family until the cycle was fixed. Meanwhile he let me use a dirt bike he had in the shop. Gerry, an Ossa rider, is trying to stimulate some motocross activities in the Kingston area.

What could have been a crummy experience was the high point of a tour through Ontario, thanks to a Canadian Honda dealer. Honda of Canada, you are very fortunate to have someone like Mr. Apps on your side.

Mel Goldberg
Allentown, Pa.

YAMAHA vs. HONDA

May I first say that "Feedback" is the best idea I've ever seen in any motorcycle magazine for encouraging reader participation. The opportunity to voice opinions on motorcycles in a national magazine is a precious one and should be exercised by those who wish to bring critical information to light.

I want to compare two motorcycles I've owned. One is a 1970 Honda CB 450. The other is a 1971 Yamaha R5B 350. Both were purchased new. Differences in acceleration and top speed are negligible. The content of my comparison will deal with reliability, ease of operation and roadability.

The Honda's cam lobes wore down during a trip from California to Ohio last summer. I've heard of this problem

(Continued on page 42)

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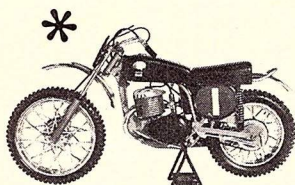
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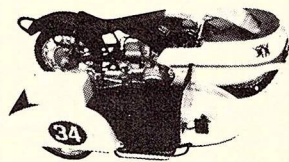
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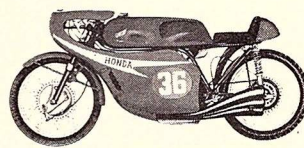
* LATEST ADDITIONS



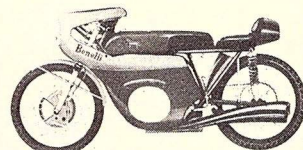
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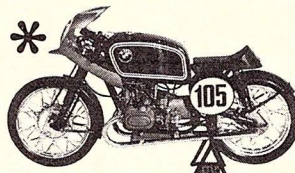
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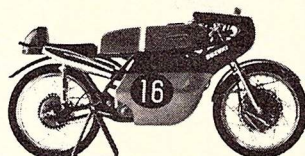
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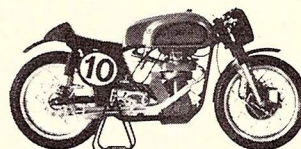
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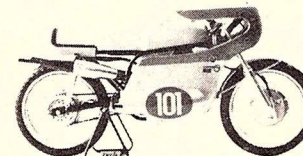
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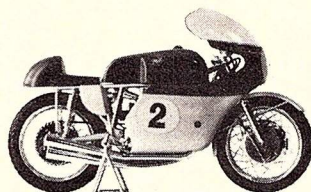
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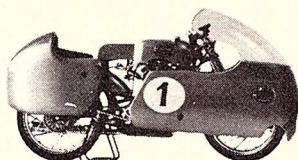
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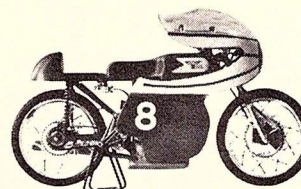
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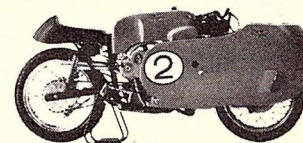
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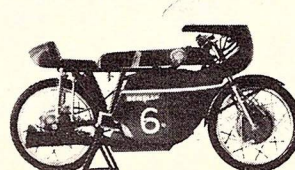
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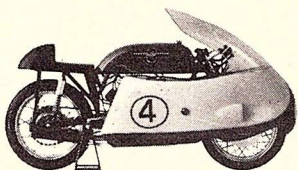
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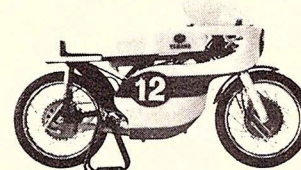
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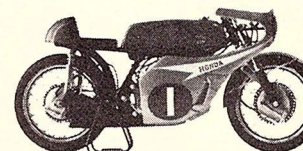
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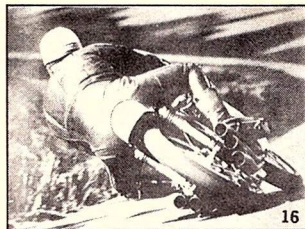
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16 Mike Hailwood heels
over and drifts at over
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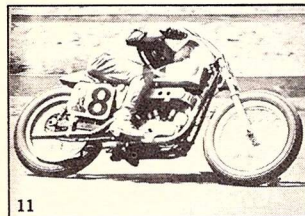
17 Cal Rayborn takes a
Daytona bend on his
H-D at over 100 mph.



16



8



11



10

8 Joel Robert on a CZ
during Inter-Am at
Saddleback Park.

11 Mert Lawwill tucks
down for speed at San
Jose.

10 Gary Nixon clowns
with photog at speed.
2-color, 19" x 23 1/2".

"FEEDBACK"

Continued from page 40

with only a few 450s. They were replaced under warranty in four days. An embarrassing situation occurred when turning a corner with two up. Things would scrape. The bike was sold with 7000 miles on the odometer and these were the only complaints. Braking was excellent. So was comfort and appearance.

The Yamaha is a different kind of motorcycle. It's fast (for a 350), handles great, and scrapes only when you drop it. Its brakes aren't as good as those on the Honda, but they are pretty good. The R5B's saddle is too hard. And it has to be the filthiest motorcycle I've ever seen. It leaks. The chain throws oil all over everything. And does it ever smoke. The rear wheel is impossible to keep clean.

Now, what about reliability? So far (and I mean "so far"), it has had three fuel petcocks, the needles and seats replaced in the carbs, 12 spark plugs (1600 miles on odometer), and a new oil pump. The oil pump cured a problem that lasted the first two months of ownership: it wouldn't start in the morning. I still can't get the handlebars locked. It seems like they gave me the wrong key or something. It also has a rougher ride than the Honda.

Which motorcycle was the most pleasant to own? Without a doubt, the Honda. Its superior reliability, brakes and comfort make it worth the extra money.

Rick Tomaine
Garden Grove, Calif.

CHEWING GUM?

When I get about twenty thousand on my Honda CB 350 I'll let you know how it held up. I only have 2700 on it now and so far so good. I did have a little trouble with a leaky head gasket. It didn't hurt anything but the oil looked rather messy all over the left side of the engine. The dealer here in Corvallis fixed it on the warranty without any hassle. Maybe he stuffed some chewing gum in there, I don't know, but it doesn't leak any more.

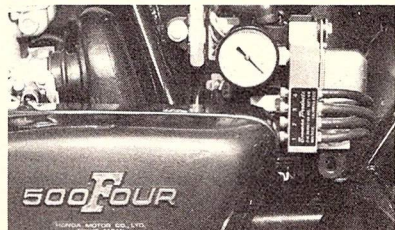
Sam Herr
Corvallis, Ore.

UNHAPPY R75/5

I have recently purchased a '71 R75/5 BMW which has developed some rather annoying problems. The most serious of the problems involves the Bing carburetors. Having talked to several 75 owners in this area, it appears as though the problems are quite common: 1) Although I've invested much time

(Continued on page 44)

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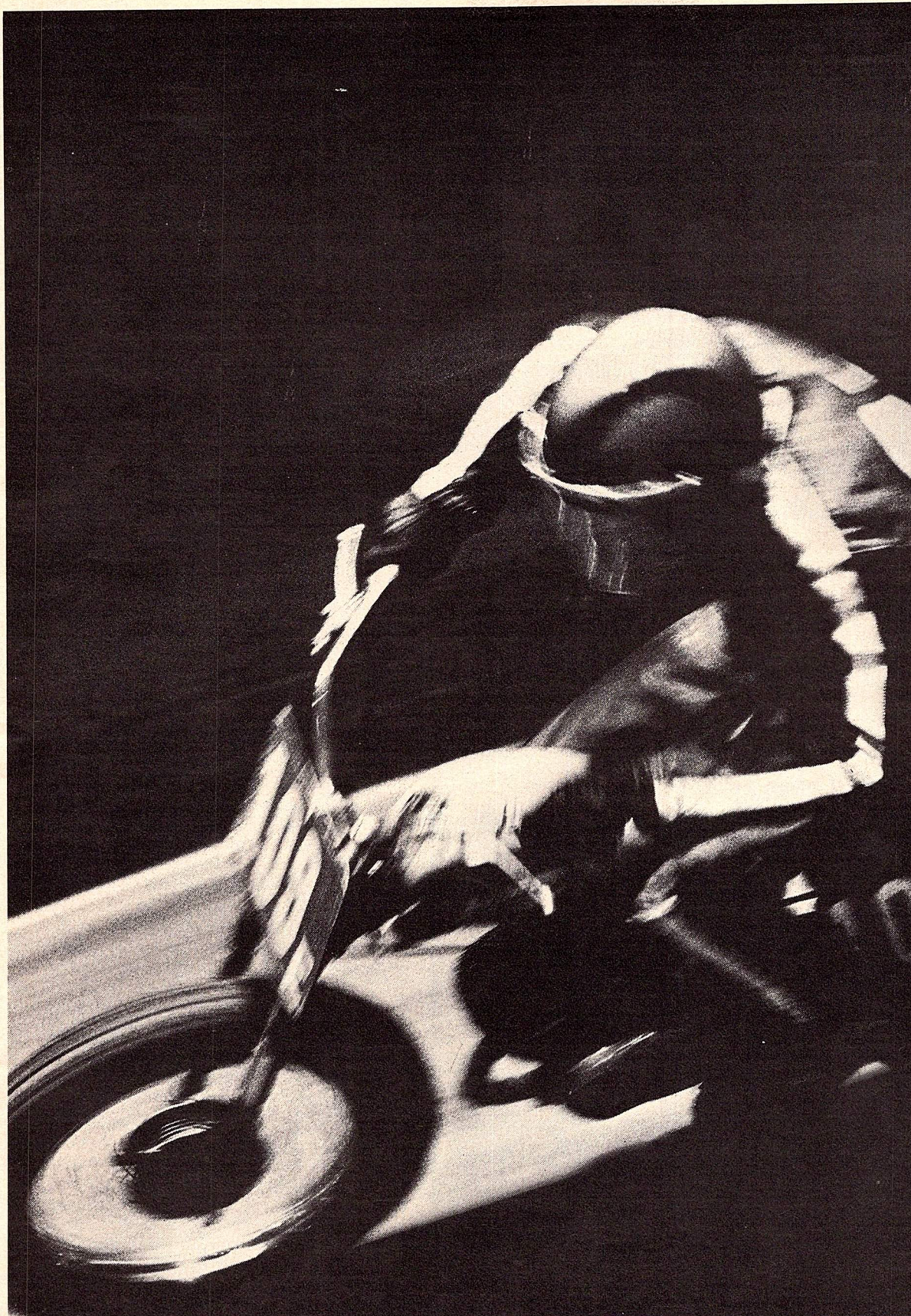
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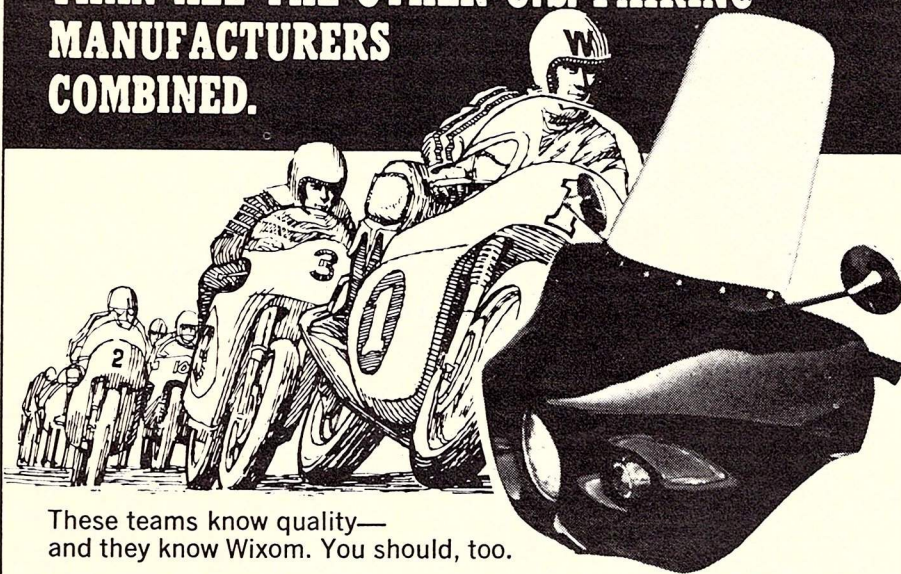
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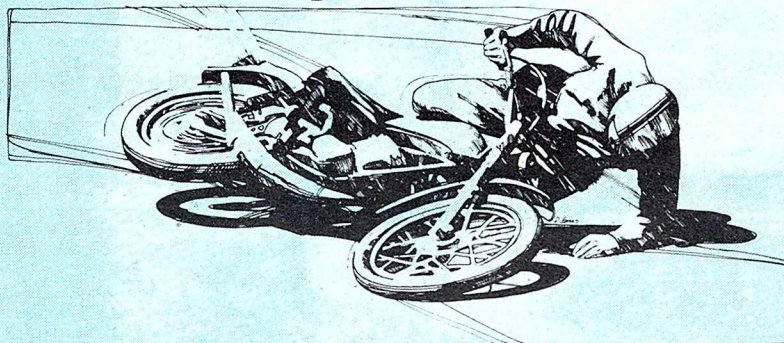
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"FEEDBACK"

Continued from page 42

and money at the dealer's, it has been impossible to obtain a consistent idle (the idle usually sticks at 1500-2000 rpm or it stalls); 2) when accelerating from start or gear changes the engine sputters and pauses before it finally responds; 3) when decelerating or shifting down it takes 10 seconds or more for the engine rpms to drop. The mechanics I've talked to agree that this is a characteristic of Bing carburetors and one must live with it—this does not in any way agree with the advertised philosophy of the BMW Company.

In the more nit-picky department, I've encountered several other "annoying" problems: 1) the electric starter rarely works; 2) the speedo-tach accumulates so much water on damp days that it is hard to read; 3) the battery straps split the first month I owned the bike, as have all the rubber dust covers; 4) oil leaks abound at almost every gasket; 5) paint on the gas tank looks like someone poured it on with a can.

Many of these last items are of minor consequence but I think they indicate a poor inspection system or no inspection at all at the factory. This is disappointing, considering the reputation and initial cost of the bike, I, like most BMW owners, paid the \$1900+ price because we were buying one of the best touring motorcycles made, a reputation well deserved in previous models. Many of the 75 owners, myself included, question whether the philosophy of the dependable bike was carried over to the R75/5. Maybe other 75 owners have solved the major problems of the carburetor adjustment and wouldn't mind passing it along to the rest of us sputtering souls.

W.R. Fagerberg
Tampa, Fla.

RISER BAR PROBLEM

A little item for your reader-cautioning efforts—a while back I purchased a higher-rise handlebar for my Honda CB350. To use the standard Honda controls and wire routing, it is necessary to cut a roughly oval-shaped hole in the lower surface of the center portion of the handlebar to carry the wiring from inside the bars into the headlight assembly.

I cut this hole fairly carefully, to about the same dimensions as the hole in the standard Honda handlebar. I filed the edges of the hole to give a smooth, non-chafing edge against which the wiring harness sheath rides.

The other day, after about 15,000 miles of mostly high speed (around 7000 rpm in fifth, or 70 mph) cruising, the handlebar broke in half while com-

ing to a stop. Examination of the bar showed rather odd, rusty fatigue cracks running around the circumference of the tubing at the ends of the hole which I cut for the wiring harness. The apparent age of the cracks suggests a long term, gradual failure due to vibration. The bar was mounted in the standard Honda rubber mounts.

It would be a good idea if you and/or your colleagues cautioned Honda owners about making similar installations of handlebars. Unless the bars have the heavy center reinforcement section that is incorporated into the standard CB350 bar, I strongly suggest that outside-the-tubing wiring be used. Failure of the center of the handlebar allows the ends of the bar to swing forward and toward the center of the headlight, the Honda handlebar mounts pivoting freely unless connected to each other by a solid bar. The consequences of this happening at any speed, traveling down the road, should be plainly terrifying. A serious crash almost certainly would occur, since failure would be most likely to occur when the machine was being braked and the rider's weight was transferring forward against the handlebar.

I don't think that the handlebar which I purchased was better or worse than the typical aftermarket bar. The rise was moderate but higher than the Honda bar and subsequently more comfortable either in town or riding behind a fairing. The bar was a simple, one-piece bent tube, chromed. It is my opinion, based on hindsight, that the wire routing hole cut into the center of the bar, combined with the rubber-isolated Honda mounts, creates an intolerable environment for any bar not fitted with a very substantial center reinforcement or doubler. Look at a standard Honda handlebar to see what seems to be required.

Jon S. McKibben
Marina del Rey, Calif.

Of interest to readers: McKibben is the man selected by Honda to pilot the Honda streamliner in search of a new absolute two-wheel speed record.—Ed.

9200-MILE HONDA 4

After something over 9200 miles on my 1970 Honda CB750, I think I can make a few observations of interest. On the positive side, it has good power and torque at speeds above 5000 rpm, and passable torque down to 2500. The ride is pretty good, if the rider is fairly heavy. With a passenger and luggage, the ride is really good. The gas mileage is exceptional for a bike this size. I averaged 52 mpg on a 2400-mile trip last summer. My 40-in. BSA will barely match that, even with a full Avonair fairing. Although the beast is rumored to require quite a bit of tuning, I've not found that to be the case. I do adjust

the carbs with every service operation though little change is normally required. The engine is also quite smooth, and the brakes are the best I've seen on a big bike.

On the negative side, the weight and high center of gravity definitely reduce rider confidence on winding roads. I'm not sure that it corners much more slowly than the 40- and 45-in. English roadsters, but the integrated bike/rider feeling just doesn't seem to be there. While on this particular comparison, the gearbox on my BSA shifts much more smoothly and quietly, though the Honda is not really objectionable.

As far as practical tips to other riders are concerned, I guess I've got three. First of all, throw the KLG plugs away and put in Champion R-6s. The KLGs develop a high speed miss, which can't be detected visually since they look alright after a run. Secondly, replace the original equipment chain when it wears out with an American Diamond. My original chain wore out in 4200 miles, despite continual adjustment and external lubrication. The adjustment had been taken up more than four marks on the swinging arm at removal. After over 5000 miles on the American Diamond replacement, adjustment has been taken up less than one mark. I just completed a weekend 550 miler, with no lube or adjustment, and the thing returned almost as tight as it left. And lastly, the carbs may be adjusted reasonably satisfactorily by using two dowel pins. I set the slides at idle so that they'll barely accept a 3/32-in. dowel pin. Then, locking the slides in a partially open position with the throttle damper, adjust one of the end carbs with the twistgrip, so that it will just accept a 0.25-in. dowel pin. After tightening the throttle damper quite securely, adjust each of the carbs in turn so that the dowel pin will just fit into the slide cutout, maintaining the originally adjusted slide for reference. The accuracy of adjustment is probably not so good as that done with pressure gauges, but I've found it effective.

Mike Stephenson
Livermore, Calif.

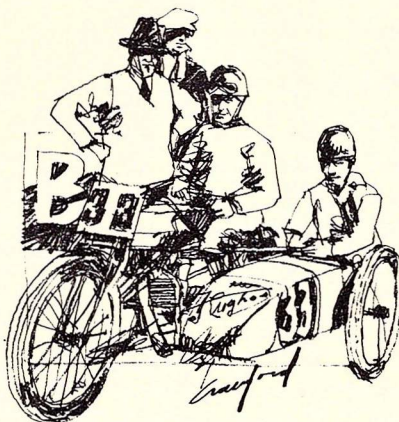


Illustration by Jim Crawford

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THE SCENE

BY IVAN J. WAGAR

THE AMERICAN Motorcycle Association awards the Number One plate to the high point rider on the National Championship trail each year. It is just possible that somewhere behind the scene they have an award for the severest critic. We would probably be the last to know because CYCLE WORLD almost certainly would be the holder for the past ten years. Our biggest gripe has been the association's lack of interest in anything and everything that did not directly concern industry and industry's best interests, even at the expense of the sport.

The reasons for the industry/sport ties were simple, logical, and financial. Until only a couple of years ago, representatives of both associations were the same people. Meetings were held in the same room, at the same hotel, in the

same city and, at the sound of the gong, people just put on the other hat and went on to the next agenda.

Under constant pressure from several sides, industry began to pull away from the AMA. It should be explained that there is a difference between an industry representative and industry representation. It is possible for an industry rep, elected to the executive committee, to be more interested in sport and competition than his counterpart in the MIC, providing they are different people.

At a recent press conference Russ March, the AMA's executive director, outlined plans for the future of the association. And now, ironically, the shoe is on the other foot; some of the old industry diehards resent the new progressive thinking of the AMA, and the fact that the AMA is not seeking permission before launching the programs. Such is progress.

Probably the boldest move by the New AMA is the formation of a Political Frontiers Workshop program, which will be headed by Bill Low, a professional political consultant. Low is recognized as one of the most dynamic and perspective political strategists in the country today, and in 1969 he developed the organization program and management system for the Republican National Committee.

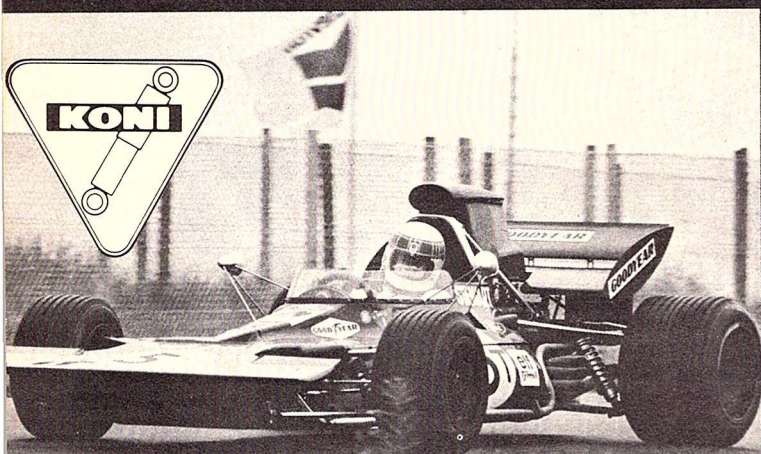
More interesting to us is that Low is an avid motorcyclist, and a first-year motocross rider. He is acutely aware of the anti-motorcycle legislation that we are beginning to be faced with nationally and feels he can help us solve our problems.

And that is exactly the key to the whole issue "Help us solve our problems." I think for too long, too many of us have been sitting around complaining about the problems we are faced with, content to think that someone else will dig in and get the job done, or that some day there will be a bolt of lightning and a messiah will ride down through the clouds on a fire-breathing 750 and chase all our troubles away. But it just ain't gonna happen that way.

Low's way is to set up a series of workshops across the country (these will be announced by the AMA at a later date), and teach the inner secrets of politics at all levels of government. Operating on the lines presented in these pages in the past, Low states: "There are heavy political overtones to virtually every problem facing cyclists today. The average politician views the cyclist as publicly unpopular and, therefore, considers him to be a politically desirable target for criticism. The politician feels that the cyclist doesn't fight back very often and when he does it is relatively ineffective."

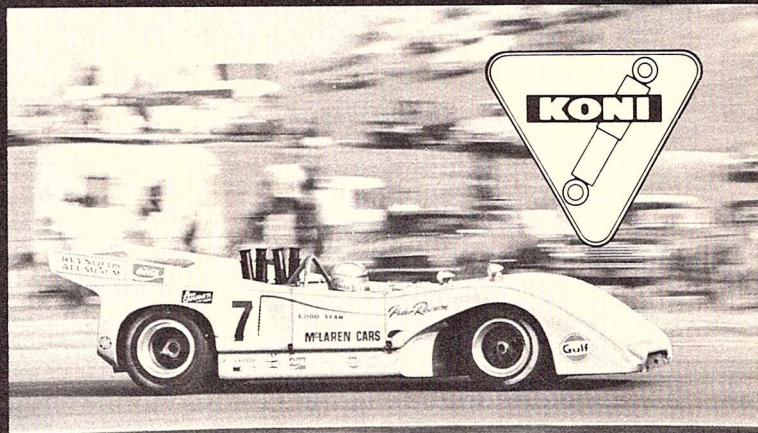
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Peter Revson won 1971 Can-Am, Denis Hulme won
1970 Series in KONI equipped McLaren's.

Low is further convinced that motorcyclists can be effective when we consider that some five million people from motorcycling families, especially now that we have the 18-year-old vote, easily could swing the outcome of some very important elections. It is not Low's intention to teach people how to fight the bad guys at the polls, but rather to show how you can discover who the politicians are that do or do not like motorcycles. Once the friendly politicians are identified there are literally dozens of ways (costing no money) that we can help ensure that man's success at the polls on election day. It is not enough to not vote for the man you don't want, you must help the man you do want, and you may find that helping does not necessarily mean a great deal of work.

I think Low is on the right track, and I for one look forward to attending a workshop. It's election year and there still is time to get some work done. I wonder, for instance, how many motorcyclists will remember the ridiculous attitudes of Senator Vance Hartke (Ind.) some five years ago when he bullied the "motorcycling minority" in his state. Now things have swung around slightly, and Senator Hartke is a Presidential candidate. Very interesting.

Another important step for the AMA is the creation of priorities for our

sport. As late as the end of 1969, professional racing required 50 percent of the staff's time. When we consider that Amateur racing occupied another 40 percent, we can see that almost the total effort was being applied to racing. At the end of last year, even with a healthy racing program, competition now requires 60 percent of staff time, leaving 40 percent for legislation, public relations and news. By the end of this year, it is hoped that professional racing will require only 15 percent of total effort, because of the expansion in other areas. The new Youth Division, for instance will have as much effort

applied as professional racing. Youth Division, or Y-AMA for short, is a program to encourage youngsters under the age of 16 to ride safely in a controlled environment, form charter clubs, and organize events.

Also available to the Y-AMA members, will be the all new insurance program. Continental Assurance Company has come up with even a better program than in the past. There is not space here to go into all of the rate details, or the towing and bail bond services, but you might drop a line to the AMA, P.O. Box 231, Worthington, OH 43085. 

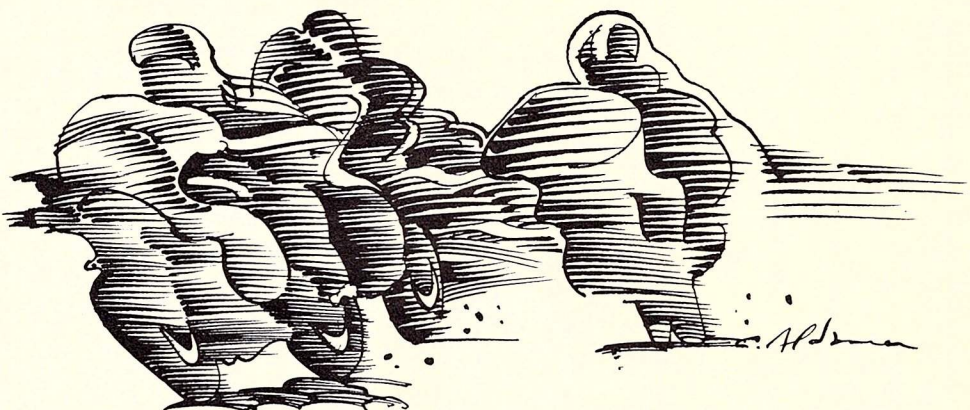


Illustration by Carl Aldana

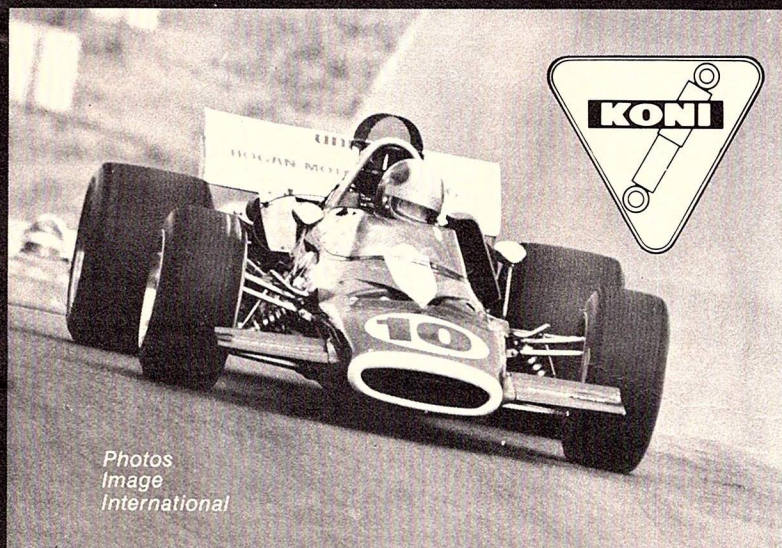
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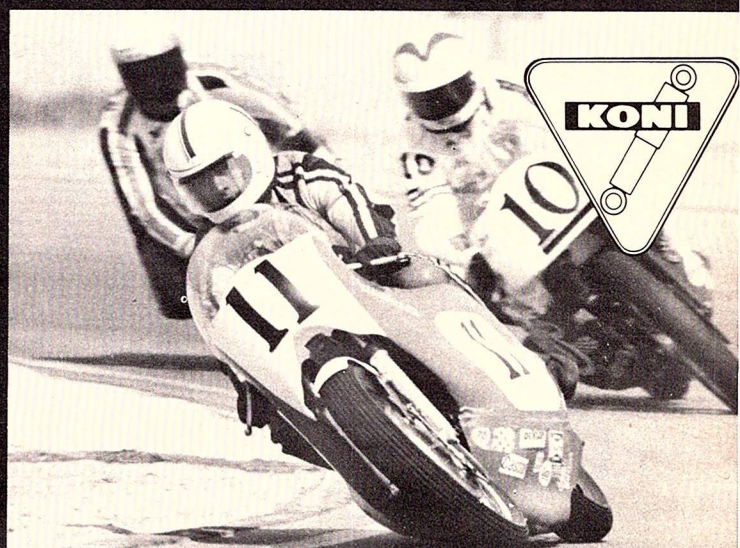
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David Hobbs in McLaren won 1971 "Continental" Series. 1969-1970 Series also won on KONIs.



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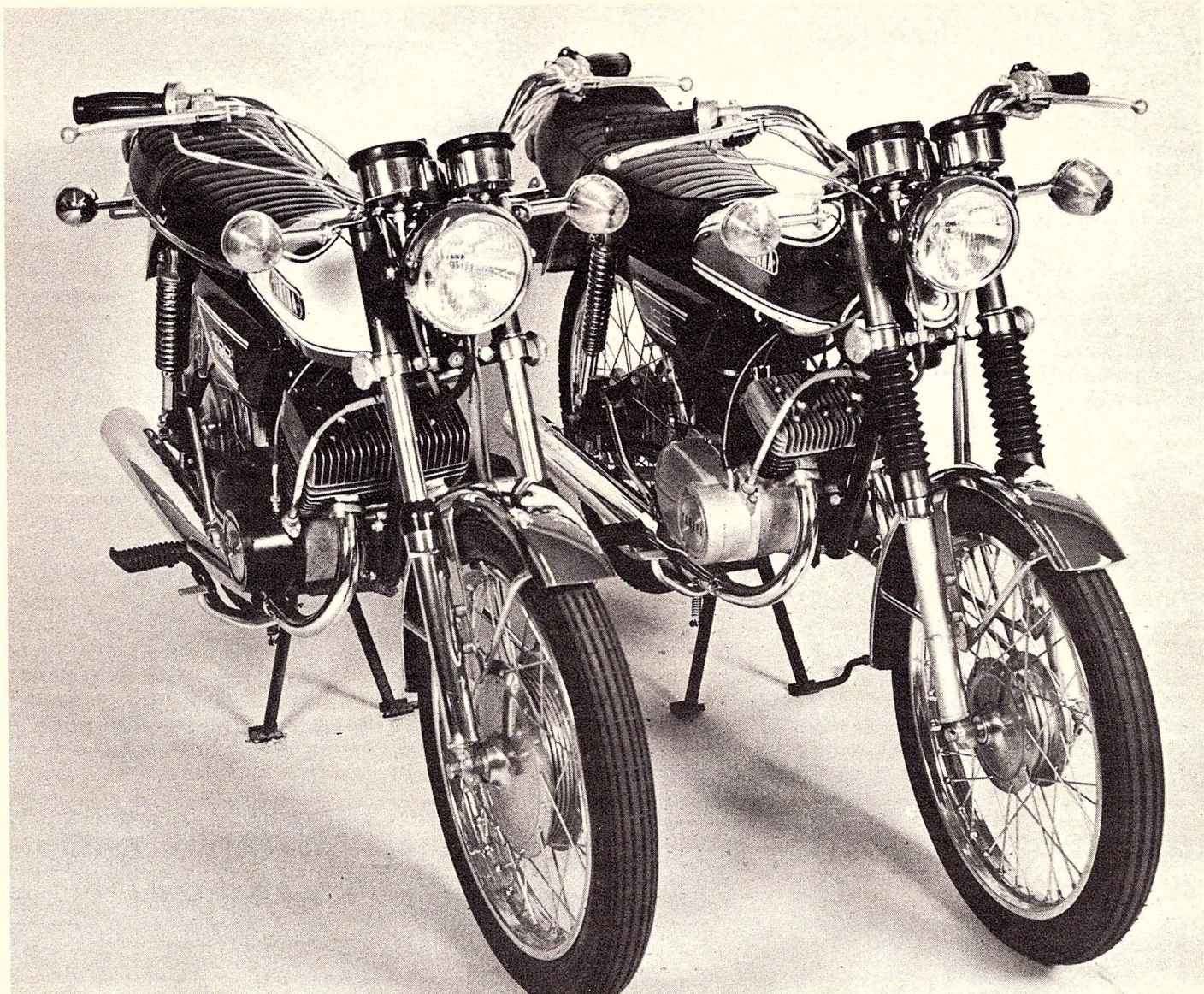
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■ How much performance and styling do you get in a roadster the size of a small trailbike? Are they practical or just toys?

Actually, if you are forced to hassle cross-town traffic daily, or if riding flat-out on twisty roads turns you on, lightweights like Yamaha's 100- or 200cc street Twins are not a bad way to go.

There are several reasons for this, the first of which is low initial cost. Monetary savings don't stop there, either. Because they are small, gas mileage is outstanding. Maintenance is simple, which should keep labor charges low, and if anything major breaks, parts are cheap.

Economics are important, but no one is going to buy a drab scooter that can't keep up with traffic. That's precisely why Yamaha doesn't build any bikes in that category. Both the 100 and 200 are everything the superlative 250 is; only on a smaller, less expensive scale.

Take styling. Chromed fenders and exhausts accent tastefully pinstriped gas tanks and side panels on both machines. Instrumentation is complete with a tachometer and speedometer. There are also turn signals, and each motorcycle is fitted with passenger pegs and a comfortable dual seat.

Cycle World Road Test

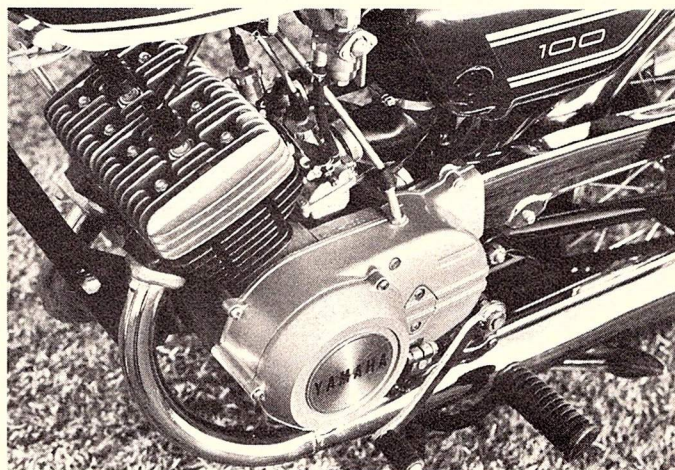
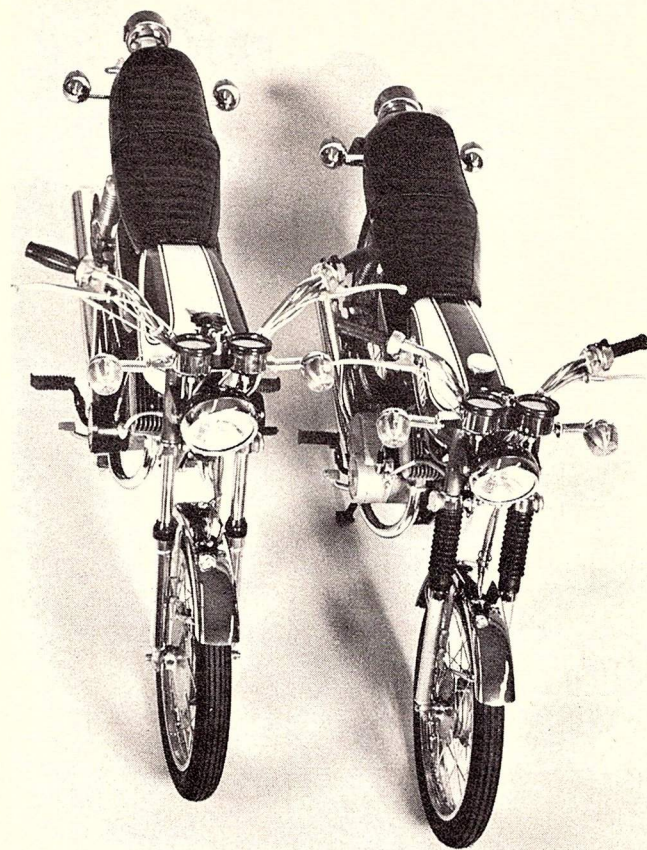
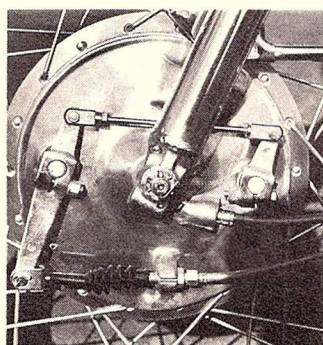
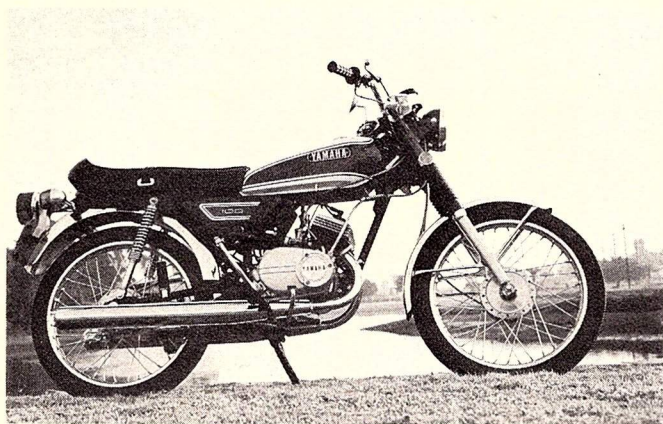
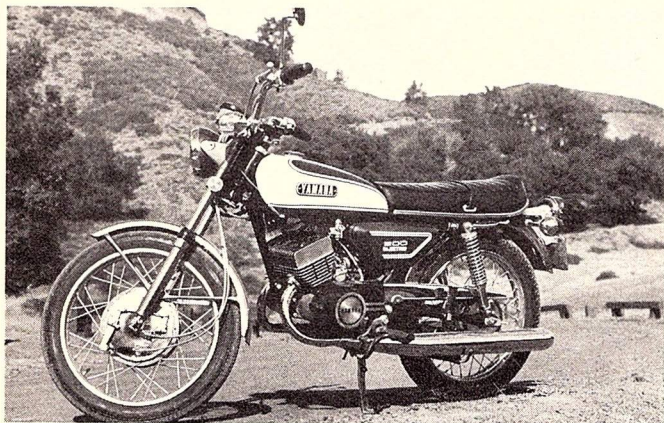
Their real selling point, though, is the very thing that people tend to be most skeptical about regarding small bikes. Performance. The 200 is a jet. Period. It will pull wheelies off the line, can pass cars at will on mountain roads, and will survive mile after mile of freeway with the engine spinning at 7000 rpm or so. Several older 250s will not be able to keep pace, especially where handling enters into it.

Handling is rather quick, but nowhere near the point of being dangerous. Steering is precise and there is ample ground clearance to allow the 200 to be banked way over for turns. Nothing scrapes and the suspension never falters with a 160 lb. >

YAMAHA 200 CS5 AND 100 LS2

Meet The Little Twins:
If You Have To Start Small,
There Are Few Better Ways To Do So

YAMAHA



rider aboard. Heavier loads, though, will cause the new internal-spring front legs to bottom, especially when braking on rough roads.

Brakes are more than adequate for a 200cc machine. The front unit is double-leading shoe. It has good feel and offers the added benefit of light hand lever pressure. The rear brake is a conventional single-shoe drum with rod linkage.

Riding the 200 is fun, but in some ways the 100 is more enjoyable. True, it isn't legal on freeways which makes the 200 more versatile, but the 100 is easier to live with in town. It's so nimble that traffic seems less bothersome. The 100 is quite competitive in stoplight grand prix, too, as long as the revs are kept up and the five-speed gearbox is used to best advantage. We're not saying that you can blow off the big iron, but quite a few compacts will fall behind until 40 mph or so.

The 100 is more than a cross-town commuter. Truck it to your favorite stretch of winding country road (the tighter the

turns the better) and you will be entertained for hours. A top speed of 60 mph is attainable with the rider sitting up and this can be improved on slight downhills or by tucking in close to the gas tank. Just how much improvement depends on the conditions (wind direction, etc.), but 70 mph is possible if a 9000 rpm tach reading doesn't scare you off.

Because of its light weight, small size and good traction, cornering ability really exceeds the power available. Technique, therefore, is simple. Hold the throttle wide open in the highest gear the engine will pull, and dive into anything short of a hairpin. Don't be fooled, though. The little Twin will wail along at speeds often exceeding legality and common sense.

Unfortunately, suspension is not on the same level as the bigger 200. Especially the rear shocks. Damping is non-existent, resulting in a near-constant, slow-motion bouncing action that is more annoying than anything else. The front forks are

200 CS5

SPECIFICATIONS

List price	\$649
Suspension, front	telescopic fork
Suspension, rear	swinging arm
Tire, front	2.75-18
Tire, rear	3.00-18
Engine, type	two-stroke Twin
Bore x stroke, in., mm	2.05 x 1.81, 52 x 46
Piston displacement, cu. in., cc	11.9, 195
Compression ratio	7.1:1
Claimed bhp @ rpm	22 @ 7500
Claimed torque @ rpm, lb.-ft.	15.7 @ 7000
Piston speed (@ rpm), ft./min.	2262 @ 7500
Carburetion	(2) Mikuni VM 20 SC
Ignition	battery and coil
Oil system	oil injection
Oil capacity, pt.	4.0
Fuel capacity, U.S. gal.	2.4
Recommended fuel	premium
Starting system	electric; kick, folding crank
Air filtration	dry paper
Clutch	multi-disc, wet
Primary drive	gear
Final drive	single-row chain
Gear ratios, overall: 1	
5th	7.75
4th	9.65
3rd	13.11
2nd	17.30
1st	26.15

DIMENSIONS

Wheelbase, in.	49
Seat height, in.	30.0
Seat width, in.	9.5
Handlebar width, in.	29.5
Footpeg height, in.	10.5
Ground clearance, in.	8.0
Curb weight (w/half-tank fuel), lb.	281
Weight bias, front/rear, percent	44.5/55.5

PERFORMANCE

Standing quarter-mile, sec.	17.24
Terminal speed, mph	67.71

100 LS2

SPECIFICATIONS

List price	\$453
Suspension, front	telescopic fork
Suspension, rear	swinging arm
Tire, front	2.50-18
Tire, rear	2.50-18
Engine, type	two-stroke Twin
Bore x stroke, in., mm	1.49 x 1.69, 38 x 43
Piston displacement, cu. in., cc	5.91, 97
Compression ratio	7.0:1
Claimed bhp @ rpm	10.5 @ 8000
Claimed torque @ rpm, lb.-ft.	6.95 @ 7500
Piston speed (@rpm), ft./min.	2258 @ 8000
Carburetion	(2) Mikuni VM 17 SC
Ignition	battery and coil
Oil system	oil injection
Oil capacity, pt.	3.0
Fuel capacity, U.S. gal.	2.0
Recommended fuel	premium
Starting system	kick, folding crank
Air filtration	dry paper
Clutch	multi-disc, wet
Primary drive	gear
Final drive	single-row chain
Gear ratios, overall: 1	
5th	9.81
4th	12.21
3rd	15.19
2nd	21.18
1st	37.17

DIMENSIONS

Wheelbase, in.	47.5
Seat height, in.	29.5
Seat width, in.	9.0
Handlebar width, in.	27.0
Footpeg height, in.	10.25
Ground clearance, in.	8.0
Curb weight (w/half-tank fuel), lb.	229
Weight bias, front/rear, percent	44.5/55.5

PERFORMANCE

Standing quarter-mile, sec.	20.33
Terminal speed, mph	59.24

adequate in both damping and travel; but like the rear units, they could stand some improvement.

Braking is the only other area in which the 100 falls a little short. Because of its lighter weight and lower power output, Yamaha has fitted single-leading shoe brakes at both ends. The rear brake is fine, but the front has a spongy feel, requires considerable lever pressure in a panic stop, and will fade with repeated abuse.

Still, it must be rated along with the larger 200 as a better than average handler. This is due to a strong, although quite unusual, frame design that is similar on both bikes. It's unusual because the engine is used as a structural member. A single toptube (with additional bracing on the 200) curves downward behind the engine where it connects to a box-like structure that forms the rear engine mount. When the front downtube is bolted to the engine, the structure becomes quite rigid. The swinging arm assembly pivots from the same structure that

forms the rear engine mount. A subframe supporting the rear fender and seat completes the package.

The engines are more conventional. Both are two-stroke, parallel Twins with five-ported cylinders, twin carburetors, and autolube oil-injection. Gear primary drives deliver 22 and 10.5 bhp respectively from 180-degree crankshafts to wet, multi-disc clutches and five-speed transmissions.

Starting is easy in both cases. The 100 has a primary kick starter which seldom requires more than two prods. The 200 with its electric starter fires instantly at the touch of a button. A kickstarter is fitted for emergencies but it will not be needed as long as the 12-volt battery is properly maintained.

Now, back to the question. Do small bikes like these offer enough performance to be practical? The answer is an unqualified yes if you're not a freeway freak or long distance touring type. And, Yamaha's small displacement Twins have that one additional advantage—economical operation. □

IN SEARCH OF a really different kind of vacation, my wife and I and another couple decided to take a motorcycle tour of the British Isles. It turned out to be the greatest vacation we ever had. In addition to the obvious differences we expected, we had many unexpected and very pleasurable experiences, among them a greater realization of the origin of our American heritage and a superb motorcycle tour.

The whole idea germinated at our local cycle store in an early winter month when one is perhaps more disposed to talking about cycling rather than actually riding. Bob Myers, owner of Freestate Cycle in Bladensburg, Maryland, had only to mention that he and his wife had been thinking about a motorcycle trip in Great Britain. I said, "Stop thinking—let's go." There were lots of reasons we shouldn't have made the trip, and a breed less sturdy than motorcyclists would have given up. At 49, I personally felt that I was lucky I hadn't already waited too long for such an adventure. Based on the probability of good weather and arrangements we could make for care of our children, homes, and businesses, June 24 to July 12, 1971, was selected for the adventure.

The months remaining before departure date were occupied by reading British travel information and history,

The twisted spire of Chesterfield Cathedral is an architectural spectacle. There is something to see every few miles in Great Britain, and the riding and scenery in between are the very best.

Touring The British Isles

*The Real Great Britain
Is In Its Villages, Rural Areas,
And The Roads Between*

BY PERRY R. GILBERT



planning what to take with us and what to see, and getting the necessary passports, smallpox vaccinations, and plane tickets. Much of our planning was facilitated by reading and referring to an article in the December 1970 issue of CYCLE WORLD entitled "European Touring, a Guide to Get You Started." Bob also got in touch with his very good friend, John Walford, Works Director of the Triumph Engineering Co. When John heard of our plans, he insisted that we establish our base-of-operation near Meridan and that we, of course, ride Triumph motorcycles. The area around Meridan was ideal for our base since it is the geographic center of England. We didn't need any arm twisting to convince us to ride Triumphs.

The long awaited June 24 finally arrived and Bob and Myrt Myers and Teresa and I started our dream vacation. Our 747 Pan Am jet left Washington's Dulles Airport around 8 p.m., and after 7 hours of flying and a five-hour time loss we arrived at London Airport at 8 a.m. the next morning. We were met there by the Triumph Engineering Co.'s chauffeur, Mr. Copson. He is a delightful gentleman, the type who is obviously happy when he is helping some-

one else. In our two-hour trip to Meridan, near Coventry, he gave us a complete account of British customs and our first lesson in driving on the left side of the road.

John Walford was waiting at Triumph to greet us. After meeting a few of the Triumph executives, we were taken on a tour of the factory. The sense of urgency that prevailed throughout the factory was unbelievable. The place literally hummed with activity. The scope and versatility of the manufacturing operation was also impressive. There were huge and sophisticated milling machines turning out gears and other precision parts. Yet, there were also hand operations such as delicate painting and some quality control. And believe me, that final assembly line of big, beautiful Triumphs is a joy to behold.

Our first four days in England were spent touring the Midlands area. We established our base-of-operation at the St. Johns Hotel in Solihull. Solihull, Meridan, and Coventry are all within 10 or 15 miles of each other on the southeast side of Birmingham. These first days were made very pleasant by our friends from Triumph, who gave us a tour of Warwick and Ludlow Castles, Stratford on Avon, Blenheim Palace, Worcester and Coventry Cathedrals, and other sights in the Midlands area.

We did see the statue of Lady Godiva in Coventry, and I wondered if Teresa would get any more novel ideas for our motorcycle tour. She didn't. She straddled the motorcycle and wore a rain suit over slacks and a blouse.

The big day we had planned for so long finally arrived. Bob picked up a '71 TR-6, I picked up a '71 Bonneville, and we headed back to the St. Johns Hotel to pick up our wives. Our original plan was to take a two- or three-day shake-down cruise to Northern Wales and then return to Solihull. We wanted to get a feel for what we needed and wanted to carry and how to carry it, with the goal being light traveling. We didn't want to look like motorized pack mules. So all we took were the clothes on our backs and what we could fit into two saddlebags. Believe me, that wasn't much, considering that my wife's purse, our camera, and my shaving kit took nearly all of one bag. We did have space for a couple of underwear changes, a spare shirt and blouse, sweaters, and rain suits. The wisdom of the sweaters and rain suits was proven later.

There in front of the St. Johns Hotel we made our final preparations for departure. Mrs. Walford and some of the hotel employees were there to share our joy as we zoomed out of the St. Johns' parking area.

We proceeded very cautiously toward >

Motorcycles were the ideal way to travel on some of the narrow roads, such as this, the Old Carriage Route to Edinburgh, Scotland.



the large industrial city of Birmingham. Our plan was to go around the city but one wrong turn took us right through the middle of the downtown area. Believe me, we learned to drive left and go around the circles clockwise in a hurry. Driving on the left side isn't as bad as we thought because everyone else was doing it too. Nevertheless, I talked to myself a lot that first day. I suppose the worst traffic situation of all is the British roundabout, or circle, of which there are many. Every time I approached one I'd say to myself, "Head left and give the guy on my right the right-of-way." But once I was in the circle I'd say "It's mine now. Don't let those guys coming into the circle from the left bluff you."

Except for London, we found the British drivers to be more polite than U.S. drivers. It's true that the British move along pretty smartly, but their whole objective seems to be to help the other fellow move along smartly, too. For instance, passing is encouraged on two-lane roads even with oncoming traffic. The driver you are passing will pull as far left as possible and the oncoming driver will do the same, leaving enough space astride the white line for the passing car. It was a snap on motorcycles.

English motorcyclists don't experience the same stigma that U.S. cyclists do. Most drivers gave us a better-than-fair shake in traffic. When we stopped to look at our maps, the windows would roll down and there would be an offer to help. One fellow even parked his car, got out and came over to help us. All this was done before they knew we were Americans; after they heard us speak they were even more anxious to help.

Getting out of Birmingham was a bit of a chore, but just about 20 miles northwest of it we found ourselves in wonderfully picturesque, rural English country. We found out soon that things aren't very far apart in Great Britain and the type of area can change very rapidly.

ly. Since we were motorcycling, we enjoyed the plenitude of serene and beautiful backroads.

The roads are a paradise for motorcyclists. Most of the network was established hundreds of years ago and follows the natural topography. The gradients and curves were selected by carriage horses and their drivers picking the most suitable route through the countryside.

Since Great Britain doesn't have to worry so much about expanding their road network, they can concentrate on keeping the existing ones in good condition. The surfaces are excellent, being mostly blacktop with small stone chippings rolled in very smoothly, and they give great traction. Stone walls or hedges line almost every road; between these and the telephone poles it's easy to forecast every turn in the road.

It was a real joy to drive a Triumph on these roads. I've never found a bike that handles quite like a Triumph; it seems to know where I'm going before I do. I didn't have to fight it into a lean on slow, tight corners. Every turn was easy and could be handled almost like a fast corner. There was power aplenty for the many hills, and when a downshift was required that Triumph clutch and gearbox couldn't be beaten.

The few superhighways in Great Britain are called motorways. They were designed with a slide rule and constructed with a bulldozer, and while they lack the charm of the other roads, they are excellent routes for getting from point A to point B.

Routes are very clearly marked. The motorways are marked M followed by a number, such as M-6. The next lower class of road is the A followed by a number, such as A-26 or A-615. Then they have B roads followed by a number. Most of the time the B is omitted so it's understood that a route number containing only digits is a B-class road. Destination signs usually cite the next village and not necessarily the next large city. This means that you must know

which village is next on your route to get to your eventual destination.

One thing that enhances the British roads and countryside is there is practically no litter. In over 1000 miles of mostly country road, I didn't see a junked car, a beer or soft drink can, or a junked washing machine or refrigerator. There was hardly a scrap of paper to be found. The British seem to know already that their environmental resources can be used up and they all make a real effort to conserve and preserve what they have.

Another joy in Great Britain, particularly for motorcyclists, is that there are very few dogs and most of them are on leashes!

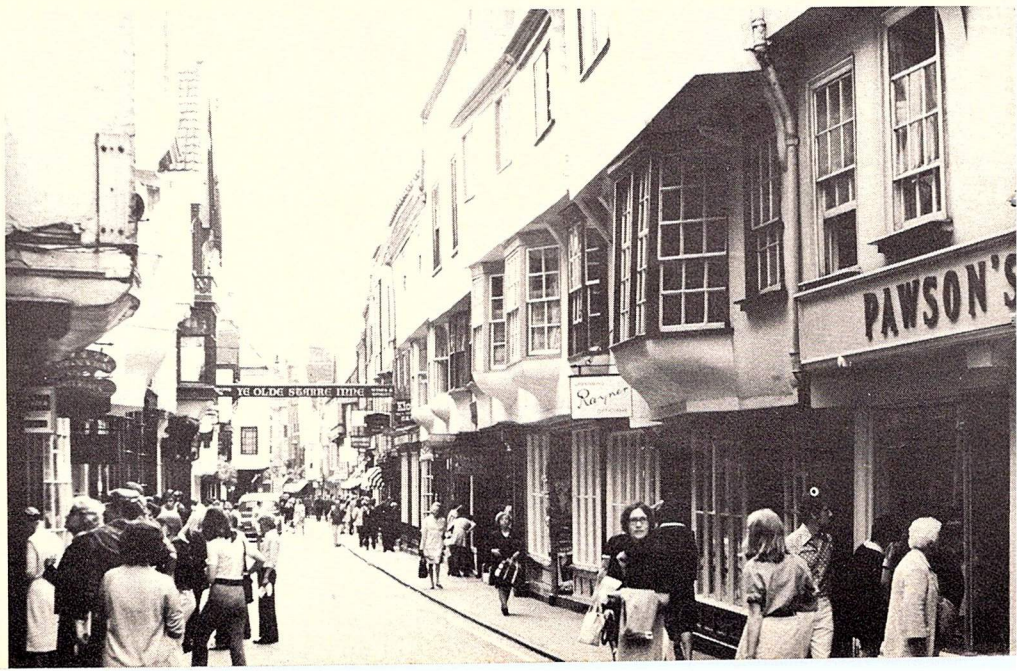
Our first night's stop was in the Welsh village of Glyndyfrdym. The Beryn Arms Inn was typical of the overnight accommodations in Great Britain. They call it bed and breakfast or just B and B. B and B cost us about \$4.25 per person and if we had an evening meal with the same landlord it was about \$2.50 more for each person. Meals were generally excellent. Evening meals had everything from soup to a fancy dessert. Breakfast was usually two eggs, toast, jelly, coffee, sausage, bacon, and ham. Yes, the British like lots of meat for breakfast.

The rooms weren't exactly Holiday Inn style, but then we weren't paying those prices by far. The toilet and bath are always down the hall but there is generally a washstand in every room. We washed our clothes, I shaved, and we even took complete baths in those washstands. Almost every room had an electric or gas heater which, in addition to warming our rooms on chilly nights, dried our laundry and wet clothes. The beds were average, but we didn't care for anything better. After riding all day, cleaning up, sipping some sherry in front of a fireplace, and eating a great big evening meal, any bed was super.

We had this same type of accommodation in homes similar to our tourist

Touring

Some streets, like those in the 1900-year-old city of York, were too narrow even for motorcycles.



homes and in small hotels. Our landlords were all friendly and were delighted to help Americans touring Britain on motorcycles. All except one made some special arrangement for keeping our bikes safe overnight. One landlord even left his car out of his garage so we could put our bikes in. I'm also sure that we got one or two accommodations because the landlady felt sorry for our wives. Not many girls ride motorcycles in Britain, and I'm sure our wives sometimes looked a little weary after a day's ride. One landlady even shuffled one or two of her tenants around to make room for us. Each of our innkeepers treated us simply great.

After touring Caernarvon and Beau Mauris Castles on the northwest coast of Wales, we had to slip over the bridge to the Isle of Anglesey to see the village with the longest name in the world—LLANFAIRPWLLGWYNGYLLGORGERYCHWYRNDROBSILLLLANTY-SILIOGOGOGOCH. The Welsh natives say the name with ease and know what it means, too. Not only is this town famous for its long name, it's famous to us because it was here that we decided to forget the shakedown cruise idea. We decided to head for Scotland with the scant provisions we started out with.

We enjoyed the rolling and twisting roads of Northern Wales but when we got back to the Liverpool-Manchester area we took the M-6 to get out of the industrial area. We really gave our Triumphs a workout. A couple of hours at 80-90 mph with a 235-lb. driver and a 120-lb. rider, plus a bit of gear, is a sizable task. The Bonneville was equal to the task; in fact, there was quite a bit of throttle left that I was too chicken to use. We got off the motorway at Kendal, England and entered the Lake

country. This area is similar to our upper New York State. When we entered Scotland we took the old carriage route to Edinburgh. This was mountainous, open, sheep range country of exquisite beauty. Sheep were everywhere, up the steep mountain slopes, by the streams, and, oh yes, on the road. The road was very narrow in places and motorcycles were the ideal way to travel. The exhaust note also had a tendency to clear the road of sheep.

In the midst of all this joy and beauty, the inevitable happened—it started to rain. The rain fell for two days, but I wasn't complaining. Two days of rain out of 19 in Great Britain is some kind of record, I believe. Besides, those rainy days on a motorcycle were quite an experience. One should be prepared for rain if he is going to tour on a motorcycle. We found that we were about 90 percent prepared. Rain suits worked fairly well. The Japanese don't realize that men come in my size, 6-foot-3 tall and 235 lbs. Their extra-large rainsuits fit me like an extra skin, so I was forced to buy a \$3.98 Montgomery Ward suit. We found that I was drier in my cheap Ward's suit than the others in their \$20-\$30 sophisticated, Japanese-manufactured suits. Not only should the Japanese make their rain suits bigger, but they should make them more waterproof, too. A little cheaper wouldn't hurt either. Our big mistake was not making better arrangements for our feet. This was an oversight and we got our feet soaked. Wet feet are cold feet, so for a little comfort I sought heat from the exhaust pipes. My shoes were plastic, need I say more!

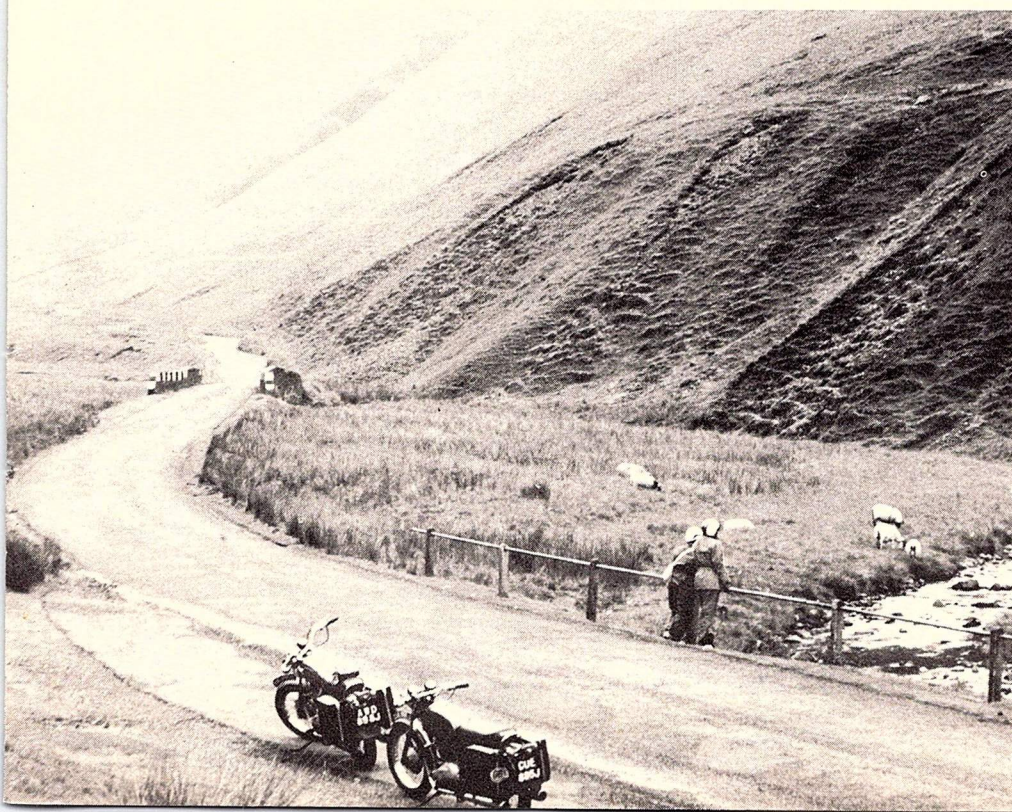
We toured Edinburgh Castle on Sunday, the Fourth of July, in the rain. We wore our rain suits and were somewhat

of a spectacle, but I'm sure we were the envy of the local tourists. The gas heaters in our rooms really did their job on these rainy days. Panic gripped us one night when I got my wife's only slacks too close to the heater. We thought she was going to have to finish the trip somewhat like Lady Godiva after all. Fortunately, it was steam that we saw and not smoke.

The sun came out as we entered England again and we had excellent weather for the rest of our trip. We enjoyed the 1900-year-old city of York with its Roman wall ruins and streets too narrow even for motorcycles. The North Yorkshire Moors was riding country again. The twisted spire of the Chesterfield Cathedral is an architectural spectacle to be remembered. There is something to see every few miles in Great Britain and the riding and scenery in between are the very best.

All good things must come to an end. We left our motorcycles at Meridan and took the train to London to spend our last three days like normal tourists. One should see London, I suppose. There's Westminster Abbey, Big Ben, Windsor Palace, and many other famous sights. It's no place for a motorcycle though; in fact, you're lucky to survive as a pedestrian. Taxis are the only way to go in London; they are fast and reasonably inexpensive. Everything else is expensive. Our hotel room, for instance, was \$35 a night and there wasn't any breakfast with three kinds of meat, either.

The real Great Britain is in its villages and rural areas. It's historic, the people are friendly, the scenery is superb, and it's a motorcyclist's paradise. The British cherish every year of their heritage and every square mile of their land. 



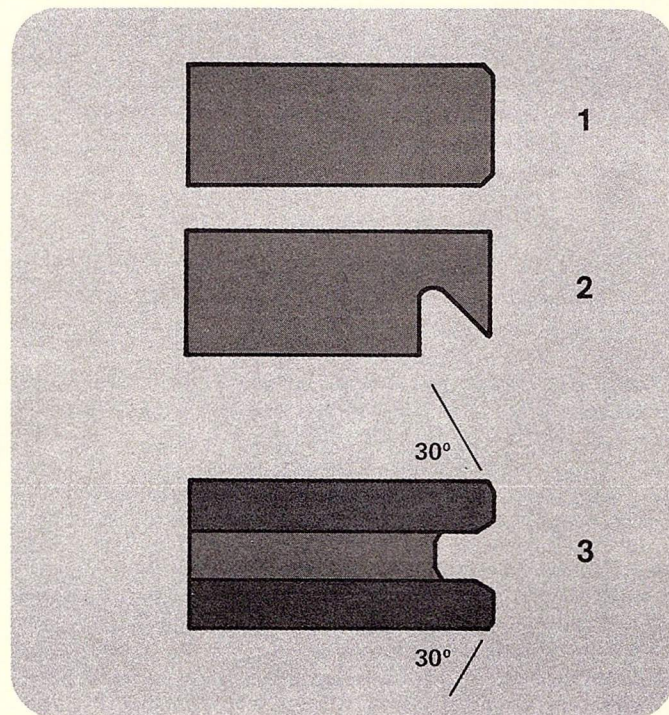
Roads are a paradise for motorcyclists. Most of the network was established hundreds of years ago, and follows the natural topography. The gradients and curves were selected by carriage horses and their drivers picking the most suitable route through the countryside.

ALL ABOUT PISTON RINGS

BY WILLIAM HAMPTON

ALTHOUGH IT'S NOT too impressive looking, a piston ring must perform vital functions under severe stress and thermal loadings. This is particularly true of today's engines that often operate at piston speeds of 4000 ft./min. So that you may better understand this component, this article makes an in-depth analysis of it.

To begin with, you might say that the piston ring, as it slides up and down the cylinder wall, is functioning like a bearing. It also has the added task of sealing off the combustion chamber to keep the gases from escaping past the piston into the crankcase.



These cross-sectional drawings show how each ring of a three-ring piston is designed differently from the others. 1) is a conventional-type compression ring. 2) not only assists the top ring in sealing off the combustion chamber but also helps to scrape oil off the combustion chamber. It also helps to scrape oil off the cylinder wall. 3) is strictly an oil-control ring.

In the case of a four-stroke engine, the lowermost oil-scraper ring must meter and distribute the exact amount of oil to keep the cylinder wall properly lubricated. Usually, four-stroke engines will have two compression rings and one oil-scraper ring. Some high-performance engines, though, may have just one compression ring and an oil-scraper ring. Two-stroke engines usually have one or two compression rings, depending on the performance characteristics of the engine.

The location of the rings on the piston determines their functions. In the case of a typical four-stroke, three-ring piston, each ring's functions are as follows: The first, or top ring is called a compression ring; its purpose is to contain the combustion charge so that maximum power can be obtained from it. This top ring also has the burden of dissipating most of the piston-crown heat to the cylinder wall. Most of that heat is generated during the power stroke.

Further down the piston is another compression ring. It bolsters the first ring in sealing off the combustion chamber by reducing the pressure drop across the top ring. This second compression ring must also help control the amount of oil on the cylinder wall, and ease bearing loads on the top ring.

Finally, the bottom ring is called an oil scraper for obvious reasons—its main job is to scrape excess oil from the cylinder wall, and ensure that enough oil remains behind to coat the

wall and prevent metal-to-metal contact. Present oil-ring design consists of two scraping edges with a ventilating area between them. Oil is metered by this ventilating area, then distributed over the cylinder wall by the two edges of the ring.

Let's take a closer look to see just what goes on when the compression ring seals off the combustion chamber. Here is where many people are misinformed, for they think that it is the ring's inherent radial tension that holds it against the wall. Not so!

Radial tension does help somewhat, but it is the gas pressure that has the main responsibility of keeping the ring forced against the wall. As the gas pressure increases, it pushes against the top of the ring, and the ring, in turn, is forced against the bottom of its groove. The clearance between the top of the ring and its upper groove surface allows the gas pressure to exert itself over the entire top surface of the ring. More importantly, this pressure gets behind the ring to force it out flat against the wall of the cylinder.

There is a detrimental phenomenon that can occur in a high-rpm engine to destroy the ring's sealing properties. This is ring float, or "flutter," and is similar to valve float.

Although flutter usually affects the top ring, it can involve the middle ring too. Here's what happens. We've seen how the ring utilizes gas pressure to press itself against the cylinder wall. When the piston rises on the compression stroke, the ring is pressed against the bottom of its groove. But, as the piston approaches top dead center (t.d.c.), and rapidly decelerates to a stop, inertial forces slam the ring upward against the top of its groove.

When this happens, the ring acts like a valve and seals off the area behind itself from the gas pressure. Furthermore, what gas pressure there is behind the ring quickly leaks away to the crankcase. Consequently, the ring collapses inwardly from the combustion pressure above it and breaks contact with the cylinder wall. Even after it does collapse and start to flutter, the ring may vibrate radially—enough, in fact, to

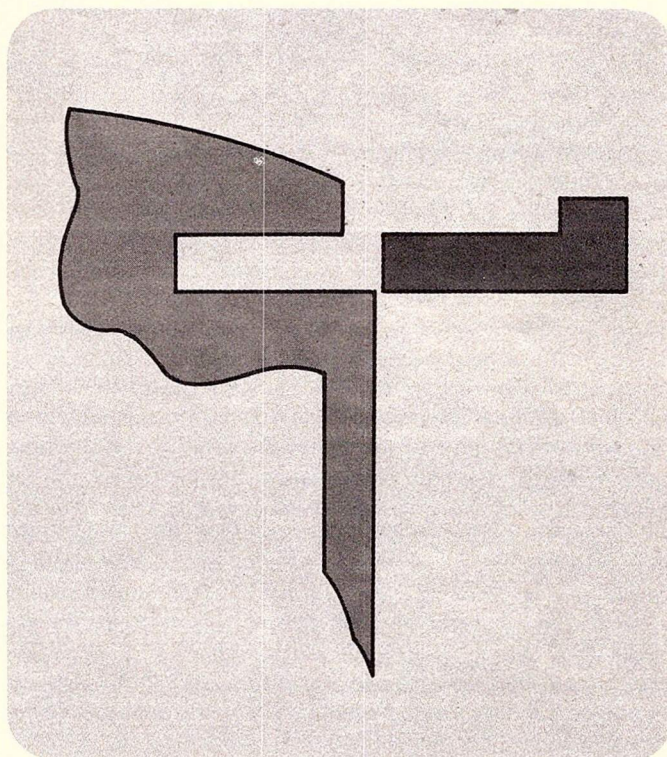
shatter itself. This radial vibration is just a form of sideways flutter.

This problem of ring flutter prompted the development of the Dykes-type ring. With its L-shaped design, the Dykes ring provides an effective means of maintaining gas pressure behind the top portion of the ring. This ensures the optimum amount of ring-to-wall contact.

With the nearby illustration as a guide, here's how the Dykes' ring works. As the ring moves upward, its bottom portion closes the gap at C. But the clearance at A allows the gas pressure to find its way behind the ring (B) to keep the ring's face pressed against the wall. Therefore, the ring is always free to move upward under inertial forces, but the space behind it is never isolated from the gas pressure.

The Dykes ring is used mainly as a top ring, although some two-strokes use this design for a second compression ring too. On certain two-strokes, notably Bultaco and Montesa, this ring is located right at the top of the piston.

The reason for positioning it near the top of the piston's periphery is that it minimizes any leakage of gas pressure

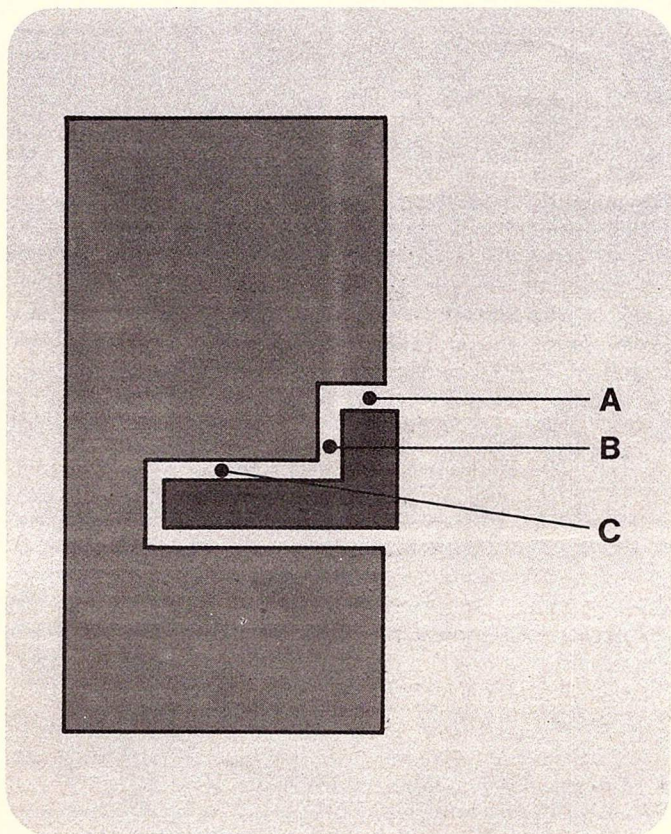


occurring between the time that the ring passes the port and the time that the top of the piston reaches the port.

The Dykes design does suffer from some drawbacks, however. During the intake stroke on four-strokes, this type of ring doesn't maintain enough pressure against the cylinder wall. It tends to relax. Oil, therefore, finds its way past the piston, with the result that oil consumption becomes higher. Hence, there is a need for a second compression ring to back up the Dykes type. But as far as sealing gas pressure alone, the Dykes ring will do the job.

When used on two-strokes, the Dykes ring is susceptible to sticking or "freezing," due to varnish and hard carbon deposits. The reason the ring freezes on two-strokes is that they are pegged to prevent them from rotating and snagging their gap ends in the ports. Four-strokes don't have that problem of fixed rings. Their rings are free to rotate and scrub away carbon and varnish formations of any significant amount.

Rings rotate more than you may realize too. In fact, >



extensive tests have proven that the ratio of ring rotation to crankshaft rotation is about 1:1000. In other words, for every 1000 rpm of the crank, a ring will rotate around its piston once. In an engine turning 8000 rpm, the rings are circling the piston about eight times per minute.

Most of the ring rotation is due to the slight offset of the crankshaft axis relative to the crankpin axis. Although this offset is only a fraction of a degree, it's enough to impart a swashing motion to the piston as it travels up and down in the bore. This swashing motion forces the ring to jam itself against its groove at some points, while at other points the ring will virtually float. It is this combination of loading/unloading the ring's periphery that imparts enough inertia to the ring to make it rotate in its groove.

This ring-rotation factor poses a pertinent question: Does it do any good to stagger the ring gaps during ring replacement? Not really! In those first few moments of engine operation, the gap settings are going to change. But contrary to what some may think, having the rings' gaps close to each other, or even in line with each other, isn't going to allow significant blow-by to occur. Even at a conservative 4000 rpm, the combustion gases have only seven-thousandths of a second to influence the piston. Incidentally, most blow-by occurs during the last phase of the compression stroke and the first phase of the power stroke.

Blow-by is more of a problem in an engine operating at low rpm, simply because there is more time for the gases to find their way past the piston or through the ring gaps. This problem of excessive blow-by is one reason why slower-operating engines have two or three rings instead of just one.

As mentioned earlier in the section on ring flutter, after the piston comes to an abrupt stop at either the top or bottom of its stroke, the ring's inertial forces cause it to keep moving. Consequently, at t.d.c. the ring pounds the top of its groove, and at b.d.c., the ring's momentum slams it into the bottom of its groove. When the top and bottom of a groove become badly worn, gas pressure escapes. In severe cases where there is a lot of wear, the ring can flop around and break.

Furthermore, the upper surface of the top compression ring's groove wears more rapidly than any of the other grooves because it's exposed to maximum combustion temperatures and pressures and to the dirt that enters with the intake charge. In certain instances when a high-rpm engine is overworked, the top ring will flutter violently until the ring land gives way and a ring breaks. It's not unusual to have the damage spread and cause complete engine failure. A badly battered ring groove may also allow the ring to twist somewhat and lose contact with the cylinder wall. The ring edges then become rounded and lose much of their sealing effectiveness.

To minimize the effects of the battering that rings can inflict on their grooves, high-rpm engines use narrow (and lighter) rings to reduce inertial forces. Narrow-width rings also don't have as much contact area with the cylinder wall, lowering drag or friction. But this advantage of lowering drag does put higher loadings on the rings' faces. Consequently, they'll wear faster than wider rings.

The rate of ring and groove wear is further affected by the air filtration system. If no air cleaner is fitted, the life of the rings, piston and cylinder wall is shortened considerably by the dirt that enters with the intake charge. Even air leaks around the intake manifold or a porous air cleaner can allow enough dirt to enter the cylinder and cause damage.

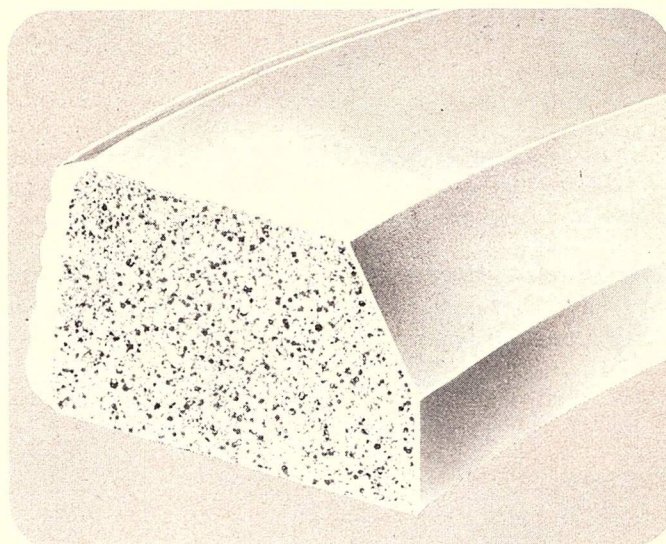
Regardless of whether they wear from hard use or from something else, the rings must be replaced at some period in the life of an engine. This need for replacement will manifest itself by a falling off in performance caused by a loss of

compression. Another indication of worn rings is excessive oil consumption. There are no predetermined mileages for replacing rings either. One engine might need them replaced at 2000 miles; another may go 20,000 miles before it needs new rings.

Ring life depends on how the engine is broken in and operated thereafter. For now, however, let's assume that your engine's performance indicates ring replacement is necessary. If you're doing your own work, closely examine the face of the ring to be replaced. Any discoloration means that it has not been contacting the cylinder wall. The ring face should have a shiny appearance.

Next check for bore wear. If the cylinder doesn't need to be "rebored," at least have it lightly honed out or de-glazed. This will remove score marks, glazing, or varnish deposits from the wall so that it can better seat the rings' faces. In fact, the best finish is a cross-hatch design, which has been found to seat rings faster than that method where the bore is honed with spiral grooves rotating in one direction only.

Also, engineers have found that having a bore in one direction only causes the rings to rotate more. Furthermore, honing in just one direction produces a helix-shaped bore, instead of the cylindrically formed bore that results from honing in both directions.



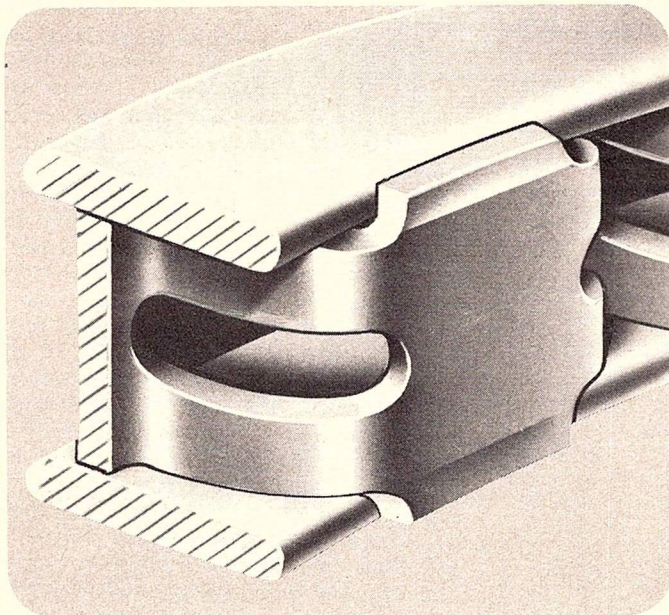
Sealed Power Corp. photo

This cutaway drawing shows a compression ring with a beveled corner behind the ring. The beveled design permits the gas pressure to find its way behind the ring so it can more readily push the ring out against the cylinder wall.

When checking a new ring for proper fit, its end gap must be measured to conform to the manufacturer's specs. This measurement is made both at the lowermost, unworn portion of the bore, and at the point of maximum wear. The point of maximum bore wear will be at the top of the stroke where temperatures are highest and lubrication least. And when measuring the gap, make sure that the ring sits in the bore squarely. Otherwise, inaccurate readings will result. The easy way to position the ring is to use the piston as a guide; insert the ring into the bore, followed by the piston, upside down.

When replacing rings other than the Dykes type on the piston, be careful not to mount them upside down. Some rings are beveled on the inside, and, if installed upside down, excessive blow-by and consequent loss of power will result.

Although most rings are of cast-iron construction, the use of chrome-plated rings can extend the intervals between ring replacement considerably. But under no circumstances should chromed rings be used with a chromed bore because sooner or later, the chrome plating will peel off either the ring or the



A typical oil-control ring. Note the center ventilated area that allows an escape route for excess oil. The upper and lower edges distribute the oil over the cylinder wall.

cylinder wall. If that happens, you can write off the piston and possibly the cylinder.

Chrome-steel rings last longer, but they require a longer break-in period. Actually, nodular cast iron is the best material for rings, as its ductility and long-wearing properties make it a practical choice for reasons of easier break-in and economical replacement.

There are more advantages of cast iron over other metals. For example, it is not only an excellent bearing material, but it can be machined to a tolerance of 0.0001 of an inch. That's equivalent to about one-thirtieth the thickness of a human hair.

Regardless of how it's designed or constructed, any new piston ring requires a certain amount of break-in if it's to seat properly against the cylinder wall. A new ring can be said to be broken in when it stabilizes oil consumption and prevents excessive blow-by.

Actually, if the right technique is used, new rings can be seated during the first 50 miles or so. The technique actually consists of two phases:

(1) Every so often give the engine a full-throttle burst for a few seconds; (2) then snap the throttle shut and coast for a few more seconds. By giving the engine full power, gas pressure forces the rings out against the cylinder wall, thereby allowing them to make full contact. Snapping the throttle shut causes a vacuum in the cylinder that draws extra oil up the cylinder wall. This action minimizes the risk of metal-to-metal contact and gives the engine a brief, but important, breathing spell that helps prevent overheating and a possible piston seizure.

This throttle-on/throttle-off technique ensures that the rings seat under realistic operating conditions. If the rings don't seat during the early stages, chances are they won't seat until 2000 miles or more have passed.

In summation, breaking in new rings isn't all that complicated. But the manner in which you do it will have an important effect on your bike's performance. After the rings are broken in, you can extend their life considerably by keeping the oil supply fresh and full and by using a good air cleaner. That's not demanding too much, considering what you'll gain in better performance and longer engine life. □

PISTON RINGS

■ There have been a lot of rumors floating around about all new Honda dirt bikes. Most thought the bike would be a 500 four-stroke with either a pushrod or overhead cam arrangement. Then came news of a prototype 250 stroker which caused considerable confusion and some unrest in the four-stroke camp.

Well, the real item is considerably different than either rumor would suggest. It's a dual-purpose 250cc thumper that is without a doubt the best off-road bike Honda has ever produced for sale to the public.

Honda's 250 Motosport looks a lot like the SL 125. It is an eye-catcher with gracefully flaired fenders and a tasteful gunmetal grey paint job. For street use there are lights, a horn, a tachometer, and a speedometer with resettable odometer.

For off-road buffs, the muffler/spark arrester combination is high mounted and tires are of the classic dirt 21-in. front/18-in. rear combination with round profile universal tread. Because

all the accessories detach quickly, Honda is offering the best for both on- and off-road riders.

Appearance aside, the Motosport's biggest selling point is the engine. Being a four-stroke, it is ideal for street use or for that occasional trek down Baja where suitable two-stroke oil is nonexistent. And, like other Hondas, it is mechanically quiet in spite of its sophistication.

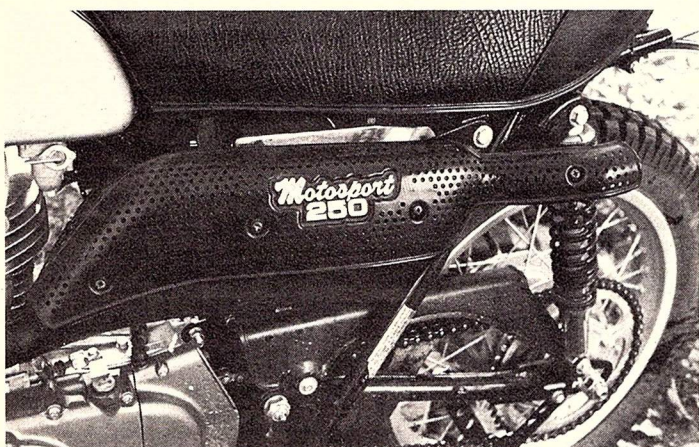
Honda has retained the single overhead cam configuration for the 250, but head design is considerably different from anything produced previously. There are four valves—two intake and two exhaust. The primary advantage is increased port area without adding weight to individual components. A single intake valve of comparable area, for example, would be considerably heavier, and at higher rpms would be less reliable because of additional stresses caused by the increased mass.

Because of the large valve area and sporty cam grind, the Motosport Single will rev to 8500 rpm. But, don't get the

wrong idea. The unit is not fussy in the least and its tractability must be rated as outstanding. Sufficient power for climbing hills is available from 1500 rpm or so and there are no flat spots in power delivery right up to redline. The more rpm the engine is turning, the more power is on tap. Bhp figures have not been released yet, but the oversquare Single (bore and stroke is 74 by 57.8mm) is definitely no slouch.

In spite of the desirable power characteristics, though, most medium and large displacement Singles suffer from two problems: they are hard to start unless one knows "the drill," and they tend to vibrate a lot at higher rpm. The reason we say most is that Honda has seemingly solved these problems, also.

If the unit is cold, pulling up on the handlebar-mounted choke button, cranking the engine over until it comes up on the compression stroke, and giving it a swift kick brings it to life. What's more, the primary kickstarter, which allows the Honda to be started in any gear with the clutch pulled in, is

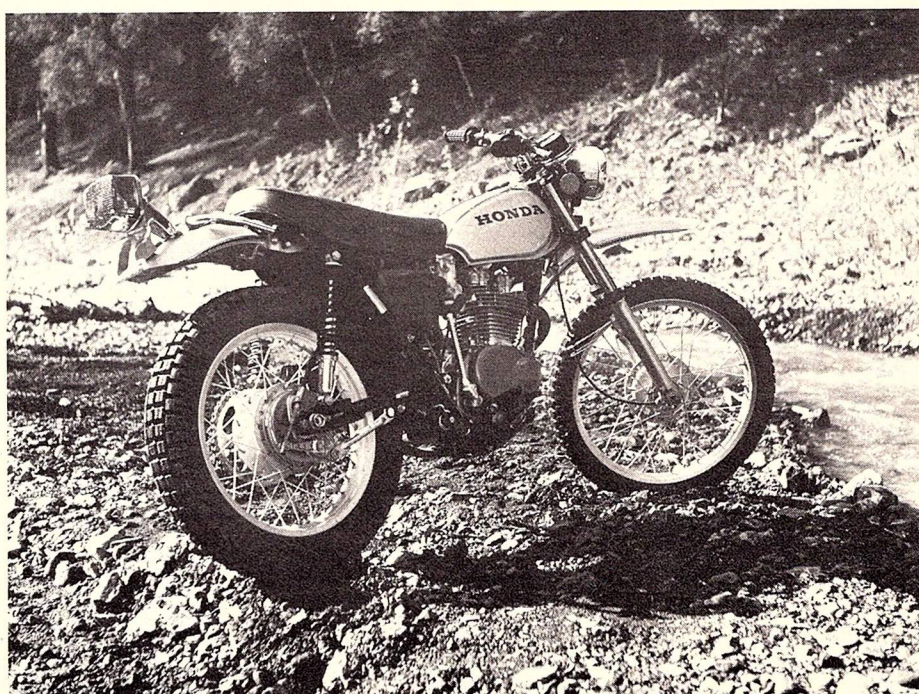


TOP

One of the Motosport's best features is this spark arrester/muffler. It's tucked well out of the way and reduces exhaust noise to a whisper.

ABOVE

A wet polyurethane foam filtering element is housed in a plastic air intake box under the seat.



Preview: Honda 250 Motosport

**Sophisticated. Tractable. Quiet. It's
Nearly Everything You'll Ever Want In
A Dual Purpose Bike**

easy to depress even though the compression ratio is 9.3:1. As for vibration, it's absolutely minimal and compares favorably with anything else in production today.

A lot of credit for the machine's smooth running and ease of starting must go to the Keihin carburetor, which is similar in design to the units fitted to the CB 500 Four. The throttle linkage on these carbs is interesting because it consists of two cables instead of the

usual one. The second cable allows a push-pull arrangement which both advances and returns the slide. This facilitates minute changes in throttle and is especially useful in slow sections. On conventional setups, the slide is returned by a spring which is definitely less positive in operation.

To keep things running cleanly, Honda has designed a good air filtration system for the Motosport. The wet,

polyurethane foam filtering element is protected from water and excessive dirt by a plastic air-box. Air is ducted into the box through a screened intake located under the seat.

Honda's claimed top speed of 80 mph seems reasonable, as Motosports have wide-ratio, five-speed transmissions. Low gear is a little on the tall side



for slow trials-type going, but most riders will probably leave the overall gearing as is because of the engine's ability to plonk along at incredibly low rpms. Gear spacing is excellent and shift lever travel is minimal. Like the transmission, the clutch is very light in action and is capable of withstanding repeated abuse.

The Motosport powerplant is totally new in design, and for a change the same can be said of the frame. Most Japanese off-road bikes are products of the short wheelbase, high ground clearance school of design. Bikes of this type tend to be highly maneuverable at low speeds, but handle very quickly and in some cases are unstable in the 50 mph or above range.

Fortunately, Honda has changed over to the European long wheelbase, low center of gravity theory, and as a result the Motosport (with a 56-in. wheelbase) tracks well at any speed. The front end feels a trifle heavy but actually the Honda is well balanced. It has absolutely no tendency to wheelie when climbing hills and always lands rear wheel first following jumps.

Some credit for this must go to the rear damper units which are also new. The shock itself offers adequate damping and, like the Koni, the shaft is fairly

large in diameter, which should prevent bending.

Two springs are fitted to each unit. The top one is rather long and has a different spring rate than the shorter bottom spring. In combination, they have characteristics similar to a single, progressively wound spring. The shocks

BELOW

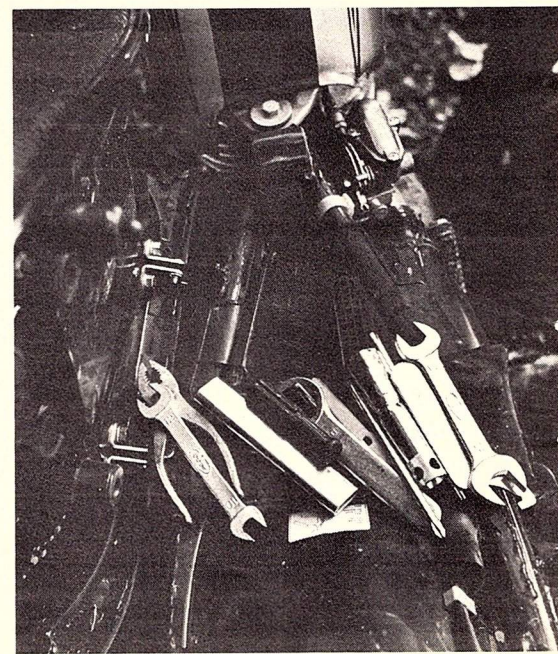
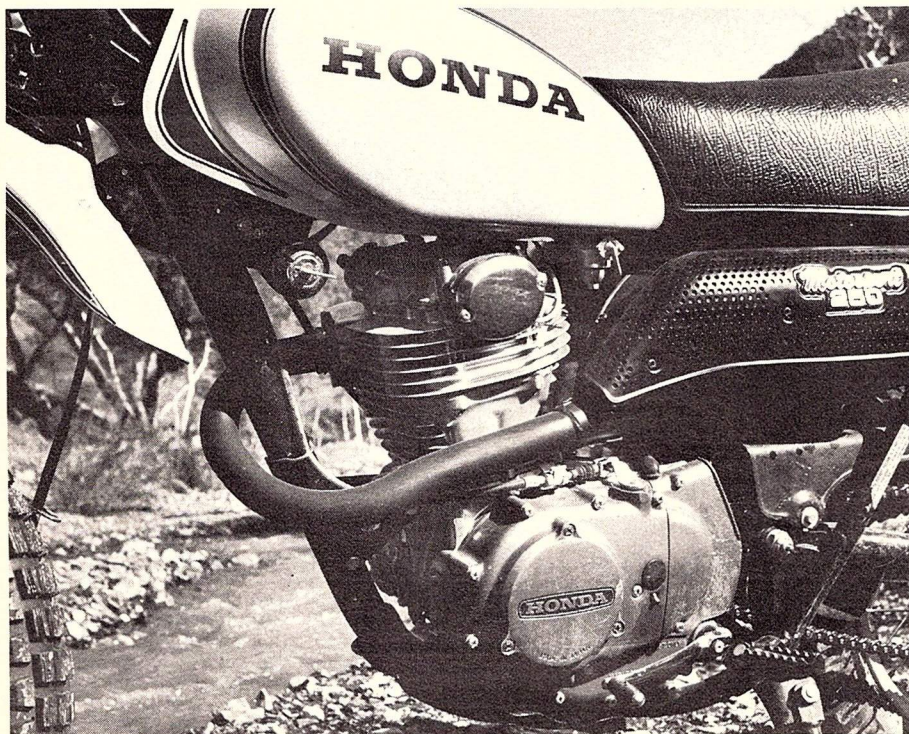
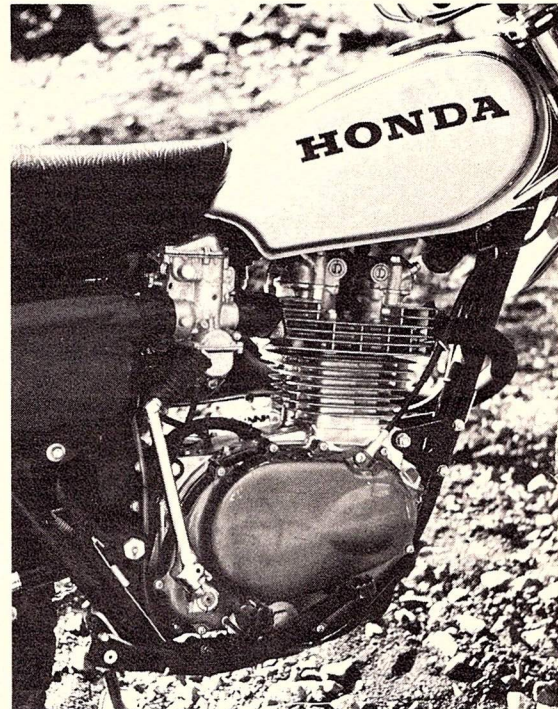
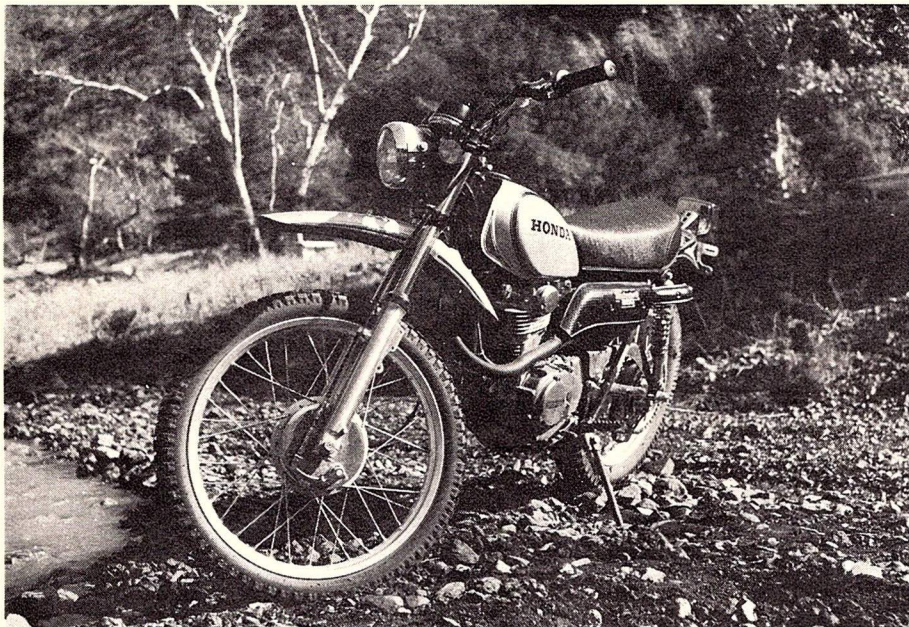
The 28mm Keihin carburetor has a push-pull throttle cable arrangement similar to that used on the CB 500 Four.

BOTTOM

As usual, Honda is supplying an adequate tool kit. For serious trail riding, though, addition of a compact chain breaker and some spare chain links is advisable.

BOTTOM

Honda's 250cc Single is of overhead cam design with a four-valve head.



are five-way adjustable and on our prototype had to be set on the stiffest spring position to avoid bottoming. Honda will no doubt fit slightly stronger springs to production models.

Front forks are excellent. Of the now classic Ceriani design, they have over 6 in. of travel. Bottoming does not occur,

BELOW

Conical hubs help reduce weight. Brakes are more than adequate for off-road riding.

BOTTOM

The rear brake is cable operated. The cable is very large in diameter and does not stretch easily.

even when the Motosport is forced over rough terrain. Likewise, damping is right on and adds to the bike's fine handling.

So far, the Motosport sounds interesting, but rather typical. By this we mean that it is well designed for its intended use and is well made. This time, however, Honda has gone one step farther. They have made an obvious effort to reduce weight. The prototype engine weighs only 81 lb. Then there are light conical hubs to reduce unsprung weight and sturdy plastic components like the air box to aid in maintaining as low a center of gravity as possible.

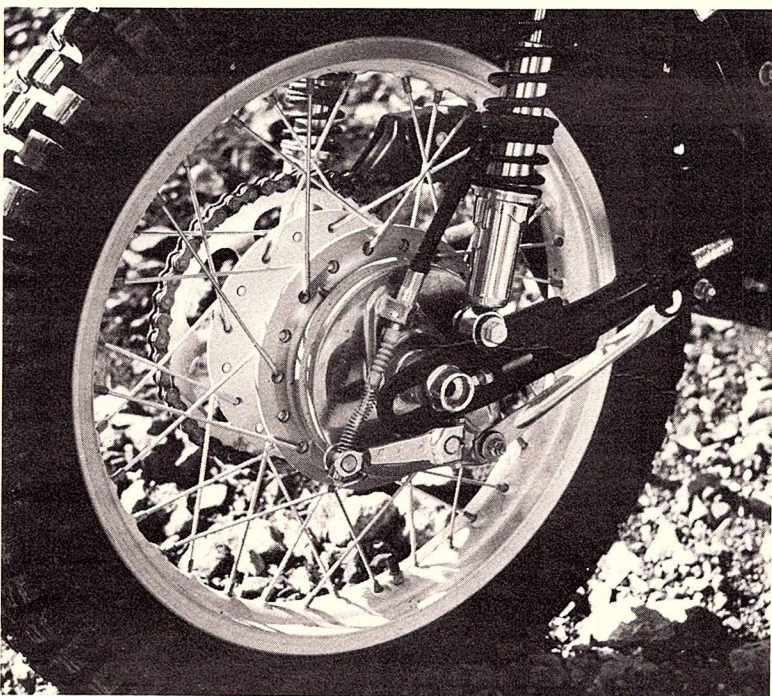
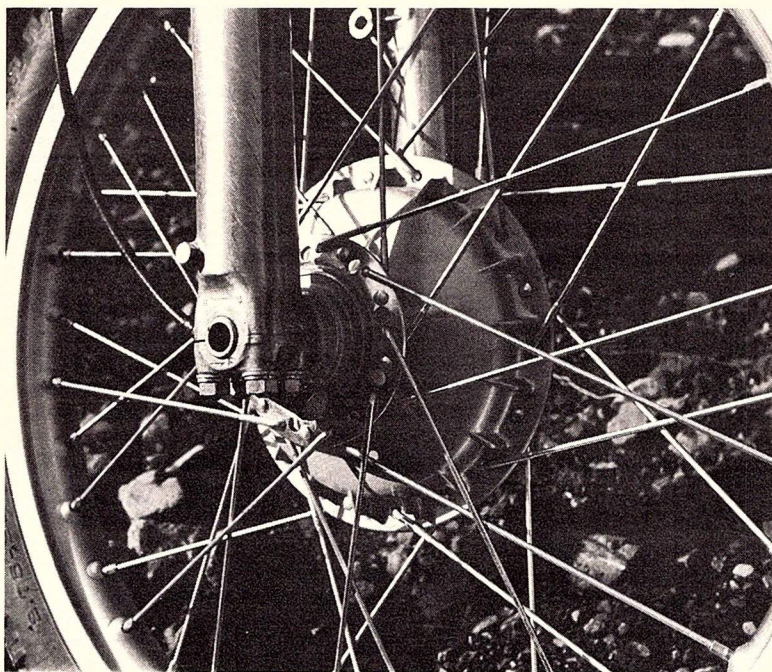
Weight of the prototype is 268 lb. dry. Lighter engine castings on production models, though, may lower weight somewhat. The final figure is hard to

predict, but Honda engineers have promised a Motosport that weighs 1 lb. less than the current 250cc Yamaha Enduro.

The production version should be well received. The 250's weight rivals that of an equivalent two-stroke, and it promises a minimum of mechanical hassles.

While its peak power falls somewhat short of levels achieved by the current crop of 250cc two-stroke enduro machines, it has them beat for flywheel effect and bottom-end torque. Combine these with whispering silence and good handling, and you have an instant best seller.

Just when we thought the era of four-stroke Singles had ended. 



Honda 250

SPECIFICATIONS

List price	N.A.
Suspension, front	telescopic fork
Suspension, rear	swinging arm
Tire, front	2.75-21
Tire, rear	4.00-18
Engine, type	four-stroke Single
Bore x stroke, in., mm	291 x 2.26, 74 x 57.8
Piston displacement, cu. in., cc	15, 246
Compression ratio	9.3:1
Claimed bhp @ rpm	N.A.
Claimed torque @ rpm, lb.-ft.	N.A.
Piston speed (@ rpm), ft./min.	3210 @ 8500 (red line eng. speed)
Carburetion	28mm Keihin
Ignition	flywheel magneto
Oil system	wet sump, gear pump
Oil capacity, pt.	3.8
Fuel capacity, U.S. gal.	2.2
Recommended fuel	premium
Starting system	kick, folding crank
Air filtration	oil-wetted foam

POWER TRANSMISSION

Clutch	multi-disc, wet
Primary drive	gear
Final drive	single-row chain
Gear ratios, overall: 1	
5th	8.06
4th	10.0
3rd	12.8
2nd	16.6
1st	23.5

DIMENSIONS

Wheelbase, in.	56
Seat height, in.	32.3
Seat width, in.	11.0
Handlebar width, in.	33
Footpeg height, in.	12.5
Ground clearance, in.	7.5
Curb weight (w/half-tank fuel), lb.	278
Weight bias, front/rear, percent	43/57

Cycle World Road Test

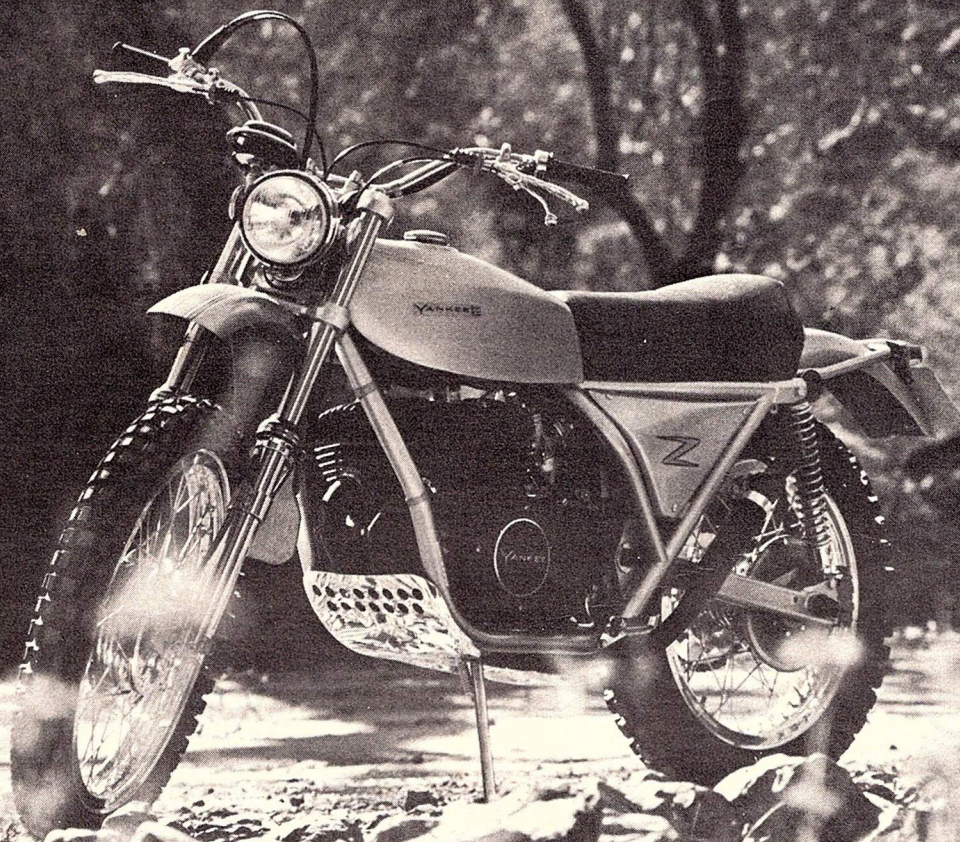
■ After sampling the first prototype Yankee in Spain in 1967, CYCLE WORLD had much to say for the machine's design, construction and possibilities for competition in all phases of the sport. In 1967 the ideas behind the Yankee were well advanced and would put the machine in a good position for success in practically any form of competition in the 500cc class. But the drawn-out development time has probably cost the Yankee some points, as we'll see.

Most of the initial development work in the chassis/handling department was performed by Dick Mann, the AMA grand national champion for 1972, who is considered by many to be the best all-around motorcycle rider in the United States. His previous design and development work both on standard and special motorcycle frames to improve strength and handling qualities made him an obvious choice for the job, to say nothing of his phenomenal riding ability. Drawing from past experience, Dick set out to make the Yankee more than just suitable; it was to be the best motorcycle of its size in the world.

John Taylor, the current president of Yankee Motor Co., the importers of Ossa motorcycles into the U.S., was faced with the task of finding a suitable engine for his brainchild. Finding people with enough interest, qualifications and capital to develop and build a 500cc two-stroke Twin in America at that time was practically impossible, so John went to the Spanish Ossa factory for talks with Eduardo Giro, the chief engine designer there. Giro confirmed the possibility of grafting two 230cc Ossa single cylinder engines together using

YANKEE 500Z

A Six-Speed Enduro/Street Twin,
With Heavy But Remarkable Handling,
Destined To Become An Instant
Collector's Machine



a common crankcase assembly to obtain an engine of the desired size, and it wasn't long before an engine had been built.

With the high degree of popularity of the 500cc competition class at that time, a Yankee in each competition class was envisioned: TT, flat track, road racing and enduro machines could be built using the low, although somewhat wide, Yankee powerplant. The engine could be built using any number of cylinder porting/crankshaft configurations, which would make it one of the most flexible basic engines ever.

The 500cc class in racing is not nearly as popular now as it was in 1967, and the difficulties experienced by the Yankee people in obtaining engines and specialized components have lessened the scope of the entire Yankee project down to production of the most specialized 500cc enduro motorcycle available, to which end they have been mostly successful. The increase in cylinder bore size from 70mm to 72mm on the Ossa Singles has been carried over to the Yankee engine and actual displacement is now 488cc, which will allow a few overbores before the engine exceeds the 500cc displacement limit.

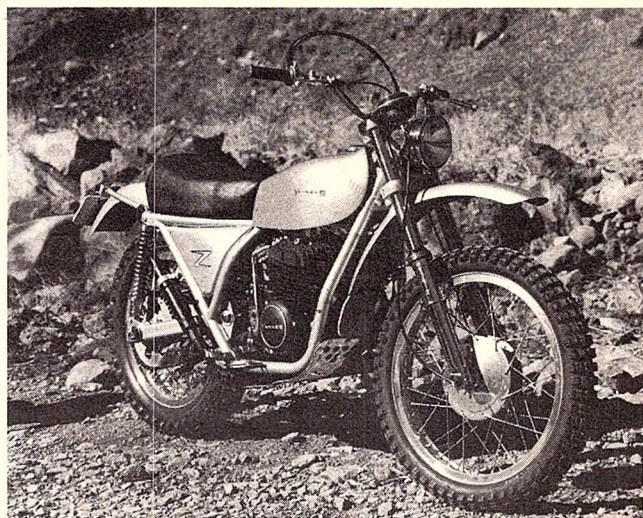
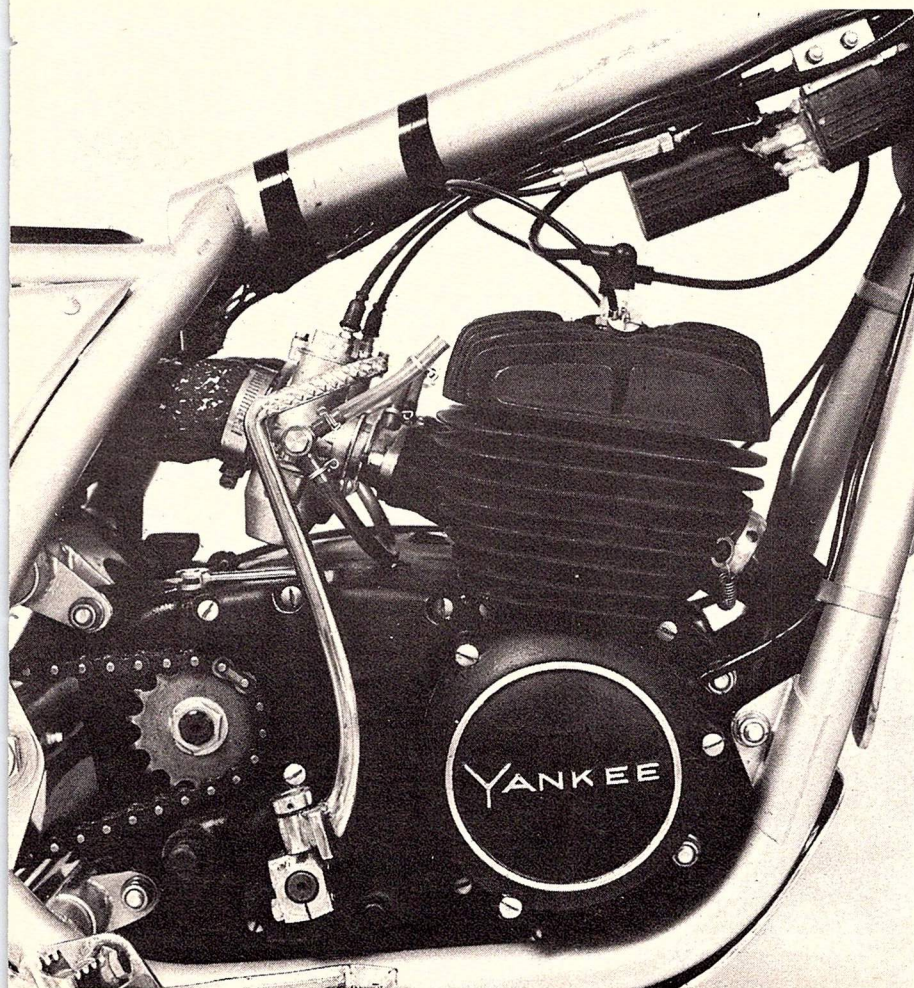
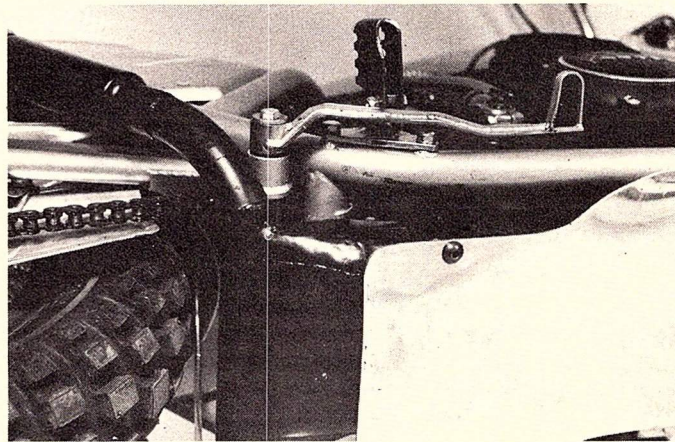
In spite of the innovative features found in the Yankee, the most interesting component is the engine. For dirt and mud riding, a single-cylinder two-stroke is superior to a conventional two-stroke Twin because it has half the number of firing impulses.

A conventional two-stroke Twin has the crankshaft throws staggered 180 deg., which means that there is a firing impulse every 180 deg. of crankshaft rotation. This is just fine for a road machine where a smooth flow of power is desirable, or for a road racer where the maximum amount of power is sought after, but on a dirt machine the fewer number of firing impulses one has, the more time there is for the rear wheel to

find traction. Hence, the Yankee has the crank journals in the same plane and in effect has the same power delivery characteristics as a 500cc two-stroke Single.

Instead of having the crankcase divided into halves split along the horizontal centerline as are most two-stroke Twins these days, the Yankee crankcase is a one-piece shell into which fins have been cast to aid cooling the crank chambers. A total of six mounting lugs are part of the casting; two at the front and four at the rear of the shell, which ensure a firm mounting of the engine in the frame. It is possible to perform a complete engine rebuild, including the transmission components, with this main shell still in the frame.

Each crank assembly is made up of full-circle flywheel/mainshaft forgings which ride on large ball bearings. The connecting rods are one-piece forgings which have needle bearings at both the crankpin and wrist pin ends. The identical crank assemblies are inserted into the chambers horizontally. >



The inner ends of the crankshafts fit into a four-row sprocket for a chain which transmits the power from the crankshaft to a jackshaft and then to the clutch. Taking the primary drive from the center of the engine instead of one side helps keep the overall width down to a reasonable level; very important on a large-capacity twin cylinder engine.

Because of the Yankee's intended purpose, a 180-deg. crankshaft and wild cylinder porting are not needed. A smooth, progressive flow of power is obtained by using the same cylinders, small 24mm carburetors and low compression ratio of Ossa's highly tractable Plonker, a trials bike. Yankees will be available on special order with a 180-deg. crank and different cylinders, but this setup isn't for the faint of heart!

Twin exhaust header pipes curve downward and terminate in a muffler located between the underside of the engine and the sturdy aluminum skidplate. An outlet from the muffler curves gracefully upward on either side of the frame and terminates in a Krizman spark arrester. The exhaust system is designed and manufactured by Hooker Headers and obviously well suits the engine's power characteristics besides effectively muffling the two-stroke crackle.

One of the best features of the engine besides the smooth, strong power delivery is the six-speed gearbox which was first used on Ossa's powerful 250cc rotary-valve Single road racer. At the left end of the jackshaft is a 12-plate dry clutch which requires only a light pull on the lever to disengage. The straight cut gears on the end of the jackshaft and those on the clutch wheel add somewhat to the mechanical noise of the engine, but it is not objectionable, and all but disappears when the clutch is pulled in.

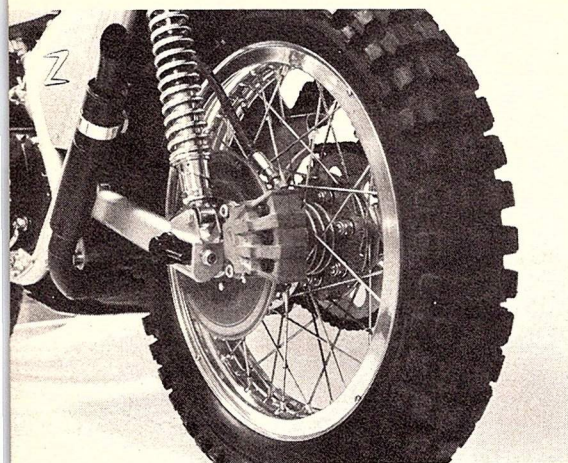
Having six closely-spaced gear ratios in an engine with a wide, flat torque band might seem superfluous, but in reality is a blessing. Low gear is so low that it is rarely needed except

when picking one's way through those "impossible" trials-type sections, and sixth is high enough to permit speeds in excess of 90 mph with comparative ease. For most general woods riding, second, third and fourth gears are used most often and the closeness of the ratios makes clutchless shifting a breeze without fear of tearing the gears out of the transmission. It's really neat to have a gear for *every* corner one is likely to encounter where the engine can be kept revving exactly where the rider feels it to be providing the right amount of power.

The gearbox is easily modified to accept either a five- or four-speed gearset if desired and was originally designed with that in mind because of the AMA's former restriction of the gearbox to four speeds. In addition, the shifter shaft extends through to the right hand side so that the rider may convert to a right hand shift and left hand brake if he desires. Additional mounting lugs are provided for installation of the brake lever on the left side to simplify conversion.

Although it is hardly ever necessary, the clutch takes willingly to slipping and the gear lever travel is short with resultant crisp gear changes being the rule. We noted some sticking in the intermediate gears, probably due to the newness and tightness of the gearbox.

The heavy full-circle flywheels are aided by the weight of the external flywheels which surround Motoplat electronic ignition systems, one on each end of the crankshaft. This additional weight helps keep the engine pulling smoothly at low engine speeds where traction in mud or loose dirt is best. Once the ignition timing has been set, it shouldn't be necessary to adjust it until the flywheel has to be removed. No contact points are used: ignition occurs as the flux density reaches a peak when the magnet passes over the stator coil. The resulting current is then fed to a transistorized circuit which triggers a silicon control rectifier located within the high voltage coil. >



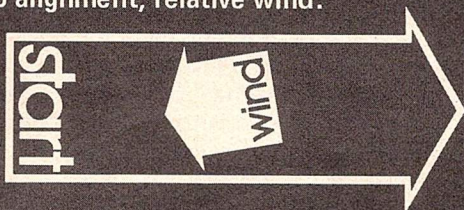
YANKEE 500Z

SPECIFICATIONS

List price	\$1495
Suspension, front	telescopic fork
Suspension, rear	swinging arm
Tire, front	3.15-21
Tire, rear	4.20-18
Brake, front, diameter x width, in.	6.2 x 1.6
Brake, rear, diameter x width, in.	(2) 8.9 x 1.55
Total brake swept area, sq. in.	101
Brake loading, lb./sq. in.	3.4
Engine, type	two-stroke Twin
Bore x stroke, in., mm	2.83 x 2.36, 72 x 60
Piston displacement, cu. in., cc	30.5, 488
Compression ratio	9.0:1 (uncorrected)
Claimed bhp @ rpm	40 @ 6500
Claimed torque @ rpm, lb.-ft.,	N.A. @ 5000
Carburetion	(2) IRZ 24mm
Ignition	Motoplat electronic
Oil system	oil mist
Oil capacity, pt.	oil in fuel
Fuel capacity, U.S. gal.	3.25
Recommended fuel	premium
Starting system	kick, folding crank
Lighting system	6V alternator
Air filtration	oil-wetted foam
Clutch	multi-disc, dry
Primary drive	four-row chain/gear
Final drive	single-row chain
Gear ratios, overall:1	
6th	6.25
5th	7.26
4th	9.00
3rd	11.85
2nd	16.73
1st	26.30
Wheelbase, in.	53.5
Seat height, in.	33
Seat width, in.	10.5
Handlebar width, in.	33.5
Footpeg height, in.	11.7
Ground clearance, in.	7.9
Curb weight (w/half-tank fuel), lb.	349
Weight bias, front/rear, percent	45/55
Test weight (fuel and rider), lb.	479

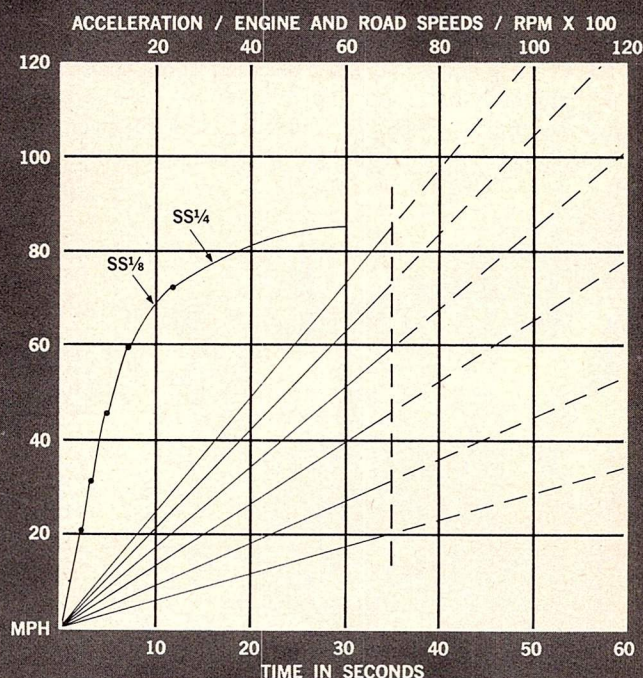
TEST CONDITIONS

Air temperature, degrees F	55
Humidity, percent	70
Barometric pressure, in. hg.	29.90
Altitude above mean sea level, ft.	50
Wind velocity, mph	8-12
Strip alignment, relative wind:	



PERFORMANCE

Top speed (actual @ 7040 rpm), mph	85.38
Computed top speed in gears (@ 7000 rpm), mph:	
6th	85
5th	73
4th	59
3rd	45
2nd	31
1st	20
Mph/1000 rpm, top gear	12.1
Engine revolutions/mile, top gear	4965
Piston speed (@ 7000 rpm), ft./min.	2755
Lb./hp (test wt.)	11.9
Speedometer error:	
50 mph indicated, actually	44.4
60 mph indicated, actually	54.2
70 mph indicated, actually	62.5
Acceleration, zero to:	
30 mph, sec.	3.2
40 mph, sec.	4.4
50 mph, sec.	5.4
60 mph, sec.	7.2
70 mph, sec.	10.4
80 mph, sec.	18.0
Standing one-eighth mile, sec.	9.93
terminal speed, mph	67.82
Standing one-quarter mile, sec.	15.94
terminal speed, mph	77.92



YANKEE 500 Z

Six-volt current is also provided by the Motoplant system to charge the battery and operate the lights and horn. The Yankee is fully street legal in every state so one can ride to his favorite field, go for a ride and then ride home again after it gets dark.

Interested in combining the best components available into the Yankee, the rest of the motorcycle is a combination of Spanish and American bits. The front brake is identical to the one found on the Ossa Stilleto and Pioneer models and is a single leading shoe affair just slightly over 6 in. in diameter with a shoe width of 1.6 in. Even though it is an aluminum alloy casting and is fitted with an alloy rim, it is slightly heavy although very sturdy. It's not too unusual, but the rear brake assembly certainly is. Using an alloy hub casting, steel brake disc and a healthy caliper unit all made in America, the rear disc brake provides truly phenomenal stopping ability, is unaffected by dirt and water and gives excellent "feel" at the brake pedal.

The line from the master cylinder to the caliper is steel-armored covered with rubber. At the other end of the hub the rear sprocket is isolated by rubber cushion blocks to ease the strain on the rear chain. Frendo "Competizione" linings are fitted to the front brake to reduce the possibility of fade, and the unit is well sealed to prevent the ingress of dirt and water. Strong, heavy spokes are used on both wheels.

Front suspension is accomplished by special forks made by Telesco with a healthy tube diameter of 1.65 in. Massive triple-clamps with a total of eight clamping screws are forged from 7075 T6 aluminum alloy by the Smith & Wesson firearms factory. Stainless steel handlebars and aluminum alloy control levers with finger tip cable adjusters complete the control group. Special hydraulic cushioning dampers in the forks prevent audible "topping out" when the front wheel is lofted. Tapered roller bearings are employed at the steering head. Rear suspension is admirably taken care of by special Telesco units designed especially for the Yankee. Slightly stiff initially, the units loosened up within 100 miles of off-road riding and feature five-way adjustable springs.

Very light oil is necessary in the front forks if they are to perform properly, and we didn't feel that they were fully broken in. However, steering geometry is spot on for all but the slowest going and is very good for road riding at speed. No steering damper is fitted nor did we feel one was necessary. Sand washes and incredible whoop-de-dos could be negotiated with confidence at speed although the bike is quite heavy for

really rough, picky going.

Massive, beautifully constructed and rugged enough to withstand a parachute drop are terms that best describe the frame and swinging arm. Largely the design work of Dick Mann, the double cradle unit features some of the largest tubes found on a motorcycle. Constructed of 4130 mild steel, the frame is quite conventional in design. A huge top tube of 2.5-in. diameter with a wall thickness of 0.049-in. terminates behind the gas tank. The front downtubes are 1.28-in. in diameter with a wall thickness of 0.065-in. These spread widely to accommodate the engine's nearly 16-in. width, curve upward behind the transmission and terminate near the top rear shock mounting points. Two more tubes of the same size run rearward from the tail of the top backbone to the top shock mounting positions and a replaceable rear section, which supports the back portion of the rear fender, can be unbolted and changed in a matter of minutes if it is damaged.

Massive plates support the swinging arm pivot bolt and the swinging arm bearings are teflon-coated bronze with oil pockets to retain lubrication. Grease fittings are provided and are easily accessible. These bushings support a sturdy rectangular section swinging arm which measures 1.73 x 2.0 in. and undoubtedly contributes immensely to the machine's rock steady handling qualities. Departing from normal practice, the bottom shock absorber mounting points are located *behind* the rear axle instead of in front.

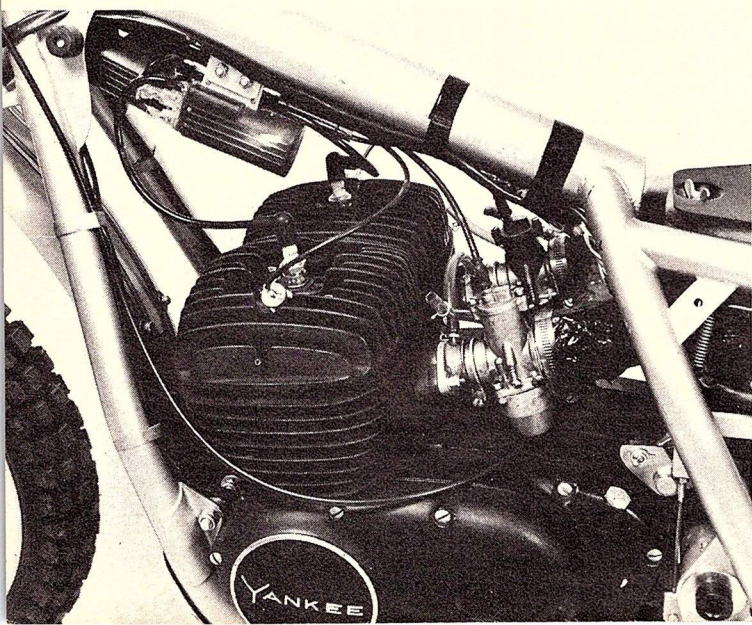
The Yankee is built as a no-nonsense machine from the ground up and will be available from the dealer on special order in any number of different configurations. The basic package is truly a work of art. Some features that the experienced, as well as relatively inexperienced, rider will appreciate are the flexible plastic fenders that can be bent practically double before braking; the fiberglass side panels are attached with Dzus fasteners which can be removed easily for servicing the battery and voltage regulator. One thumb-screw is used to attach the seat which is removed to expose the toolkit and the aircleaner for easy servicing. The seat, incidentally, is very comfortable and provides good support for the rider's backside without being too wide.

One thing that riders of smaller stature won't appreciate very much is the sheer largeness and hefty weight of the motorcycle. The gas tank holds 3.25 U.S. gallons of gasoline which is enough for approximately 90 miles of serious trail riding, but it is quite wide and high off the ground. Add to that the width of the machine and you'll find some disappointed short riders.

Much of the weight comes from the engine, which tips the scales at almost 90 lb., dry. Add to that the 32-lb. weight of the basic frame (less swinging arm), the enormous front suspension package, the wheels, the electrical system, and you have a machine weighing nearly 350 lb. ready to go. Much can be said in favor of heavier motorcycles with regard to comfort, but not in rough country unless the rider is in excellent physical shape and fairly hefty to begin with. Lifting the Yankee out of a mudhole or dragging it around a hillside can tire one out pretty quickly.

On the other hand, the entire package is so well thought out and constructed that it's fairly hard to get into difficult situations. Almost 8-in. of ground clearance makes it easy to clear fallen logs and raises the wide engine high enough to go through narrow trenches without hanging up the crankcases. The engine is powerful and tractable enough to make it up almost any hill with decent traction, and the superlative suspension system is ideal for riders weighing 165 lb. and up.

The Yankee is disappointingly late in its arrival, but the finished package is worth the wait for the enthusiast. 



IF YOU FOLLOW motorcycle racing to any degree at all, no doubt you've stumbled across the names of Gary and DeWayne Jones on several occasions. Generally you see them listed in the winner's column of a motocross or long distance-type race such as Baja, and you may have even read about them in a Yamaha advertisement.

DeWayne, 20, and Gary, 19, are factory motocross riders for Yamaha and comprise hard-to-beat competition for others when they climb aboard their prototype "YZ" Yamahas and begin circulating a motocross course. They are equally formidable foes when it is necessary for them to traverse great distances over rough ground at high speeds. Long distance events such as the Baja races seem to be right up their alley and offer them no particular difficulties.

Their racing prowess is, of course, "natural" and is a spark that few riders

have, but a great big part of their success is due to the knowledge and help/guidance of their father, Don, without a doubt the "master link" in the "Jones Chain."

Texas born, Don Jones exhibits all the qualities that characterize a Texan. He seems much like the methodical oil man of Texas, kind of a "bumpkin" deep down inside, but wise to the city slicker's way of doing things. The only difference is that his "oil" is winning races, and his drilling rigs are the YZ Yamahas. The "crew" manning the rigs are, of course, his two sons, DeWayne and Gary. If that sounds as though he stands over the guys with a whip and a win-or-else threat, you're getting the wrong idea.

His first concern is for his boys—everything else follows in the racing game. He does know, however, that "boys will be boys" and on a few

occasions will try and slough off on their physical conditioning or may take a shortcut when preparing the machines. This is where his "tight ship" policy comes into effect and makes for a winning team. Don says the guys know that "there will be hell to pay" if things aren't done the way they should be. As a result, the Yamahas are flawlessly prepared and the boys stay in real fine shape, but like the old man says, "they got a long way to go before they're in the same shape as the Europeans."

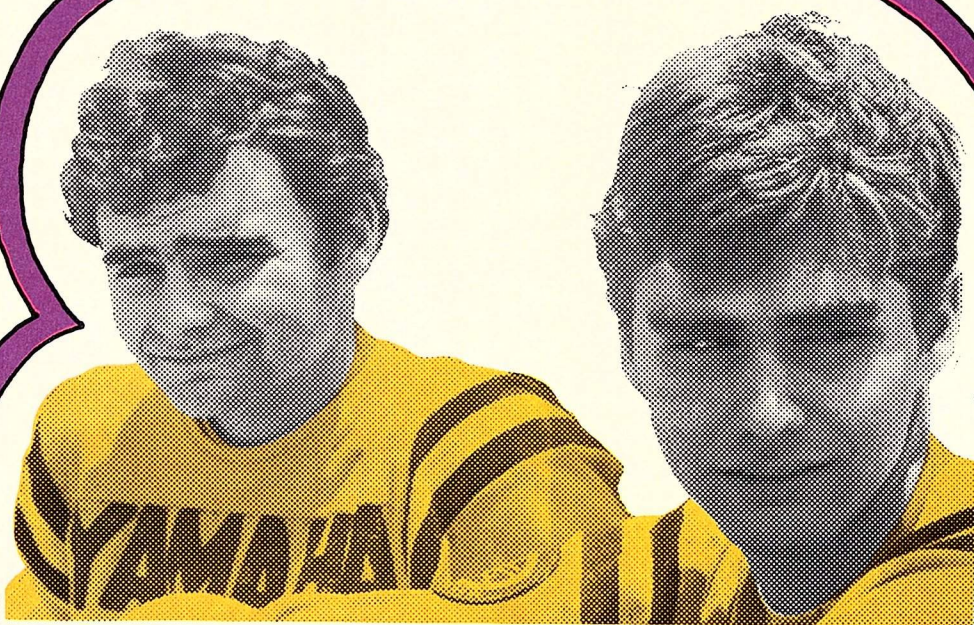
Many people wonder just how "The Jones Boys" got started in their racing careers. We've seen them for a number of years now winning TTs, desert events, motocross—you name it, they've probably done it.

Well, here again, it probably had a lot to do with you-guessed-it, their dad. He's an old-timer when it comes to >

THE JONES BOYS

One of America's Winningest Motocross Combinations

BY D. RANDY RIGGS



DeWayne

Gary

motorcycle racing, having started active competition in 1944, just after he got out of the service. But, he too had a healthy motorcycle background with both his dad and granddad being active riders. In fact, his dad still rides today, and he's into his 70s. On top of that, his father-in-law also was involved with motorcycles. Is it any wonder that Don wound up owning his own motorcycle shops?

By this time, of course, he was uprooted from his Texas home and was already settled in California, long since the place to be if you dug bikes. It was in the San Gabriel Valley that he started his businesses, which grew to be the largest in California. In fact, the two shops combined had more of a variety of brands than any other dealer in the entire state. You could buy a Matchless, Norton, Royal Enfield, Yamaha, To-

hatsu, BSA, Ducati, Zundapp, Bultaco, Puch and others, which is quite a selection to say the least.

It was during this time that the boys were starting to get to the point where they were ready to ride. After all, what boy doesn't want to try and do what his dad does? Darn few, that's for sure. At any rate, they got to riding bikes pretty quick, and in no time at all they were power sliding their 50cc three-speed Tohatsus around the local tracks, gaining that all important experience at a very young age.

DeWayne, being the oldest, always got the better equipment to ride back in those days. Gary got the hand-me-downs. The situation today, though, is just the opposite. DeWayne says since he married his wife, Tricia, Gary gets the best stuff.

After the three-speed Tohatsu came

the four-speed, and it was the hot setup in the 50 class back in those days. The boys won a lot of races on those machines. Gradually they worked up to the larger bikes, and time spent racing in every class undoubtedly made more versatile riders out of both Gary and DeWayne.

Finally, in 1965, Don decided to sell the business and spend some time with the boys and manufacture accessory motorcycle parts. By this stage of the game, Gary was riding DeWayne's old Bultaco 125 and DeWayne was on his BSA Goldstar.

When the DT-1 boom hit, the Jones' were in there, too, and eventually their continuous success in racing paid off with a factory ride from the Yamaha people. The road was a long, hard one, though, and as Don says, "We paid our dues."

JONES'



Don Jones



They began experimenting with the DT-1s to try and improve them for motocross-type races. They worked on the engines to where they had more than enough horsepower, but then they couldn't stay on the machine. This led to cutting and chopping the frame to change things such as center of gravity, fork rake, etc. Soon they had a machine that not only went like the dickens, but handled, also.

At this point Yamaha requested the bike back and sent it over to Japan, never to be seen again. Apparently it was studied by the Japanese engineers, and more than probably many of the ideas on the Jones' machine were incorporated into the new YZ, a machine which the Jones boys soon had.

Without a doubt, the YZ prototypes get the job done in competition. Gary won the big Boise Motocross put on by

Evel Knievel last year, and brought home a new Toyota automobile. Both brothers did well all year in the many weekend events held in California and surrounding states. Gary placed sixth in the U.S. Grand Prix held at Carlsbad, Calif., which amounted to the second highest placing American.

What is it that makes the YZs tick? It's mainly a combination of light weight (188 lb. ready to go), strength (lots of titanium used), power (basically a DT-1 engine) and a frame that makes the machine handle like it should. It's a package that is nothing short of fantastic.

Unbelievable efforts have gone into producing a light, light bike. One example is the rear shocks, having nearly 4.5-in. of travel, yet both together weigh only as much as *one* Girling. Yamaha must be serious about eventual-

ly producing machines capable of winning the world's championship in motocross or such a serious effort like this would have never been started.

Both Gary and DeWayne take their racing very seriously and want something in return for their efforts. For this reason they take a strong dislike to the fast buck promoter who makes a small fortune and hands out only a bunch of cheap trophies. They speak highly of the sincere effort Evel Knievel is making toward giving racers their fair share and then some. Conversely, they have some gripes about one organization in particular, the CMC, which they say is about the most "Mickey Mouse" club anywhere. Needless to say, they don't ride any of its events.

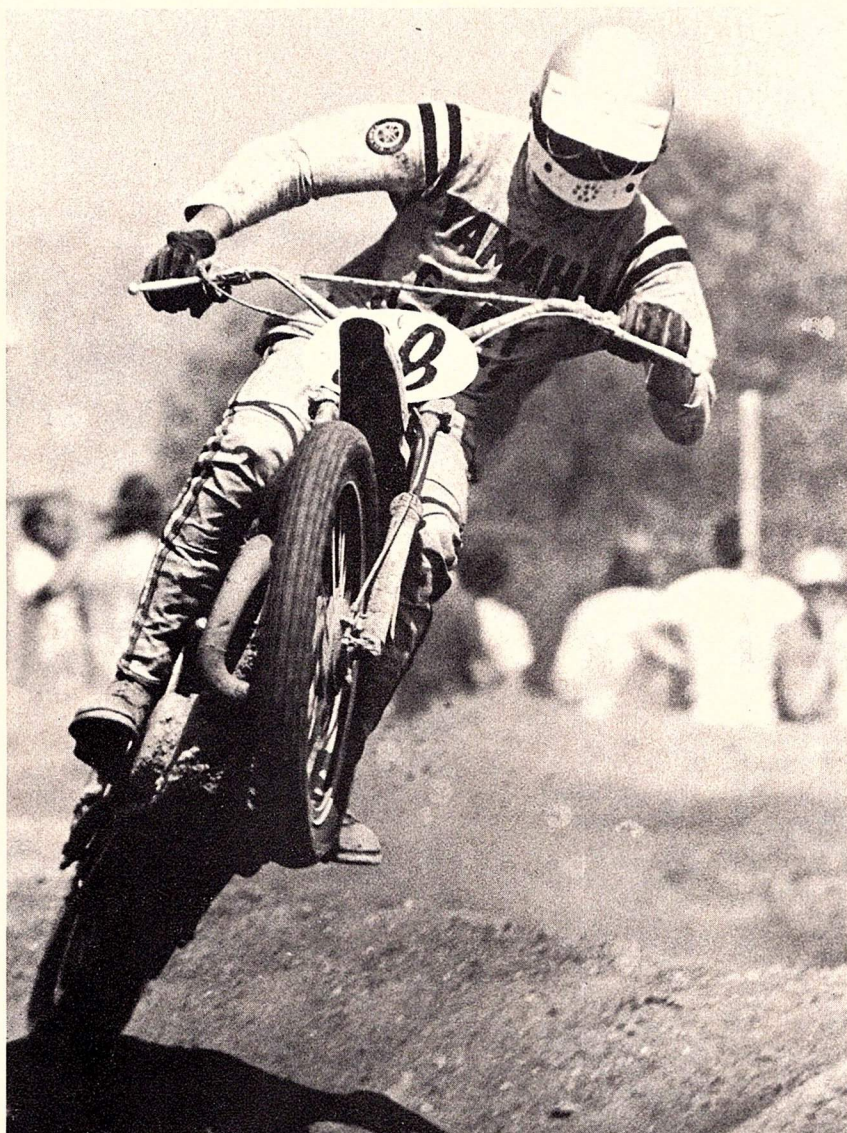
When the brothers aren't racing, motorcycles still occupy most of their time. They manufacture fiberglass tanks and seats under the name of Jones Products. All of their machines carry the boys' handiwork and the list of users grows bigger every day. The tanks they produce are really beautiful.

Riding to their job on bicycles (about 10 miles) is one way they stay in shape for the strain of motocross. They live next door to one another in Hacienda Heights, Calif., so it's easy for their father to keep an eye on them both, even though DeWayne is now married.

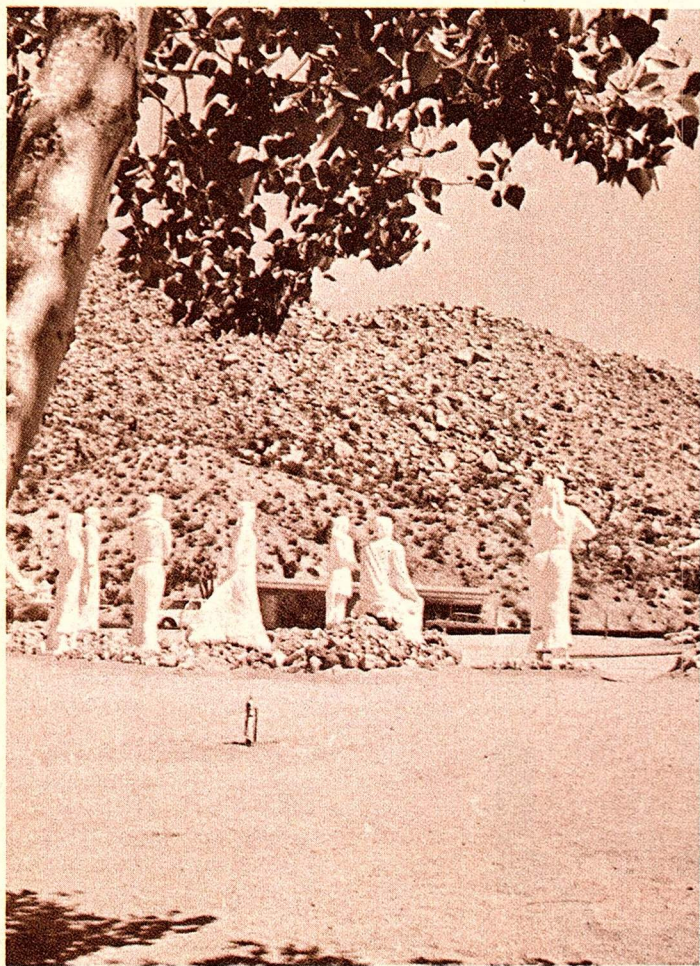
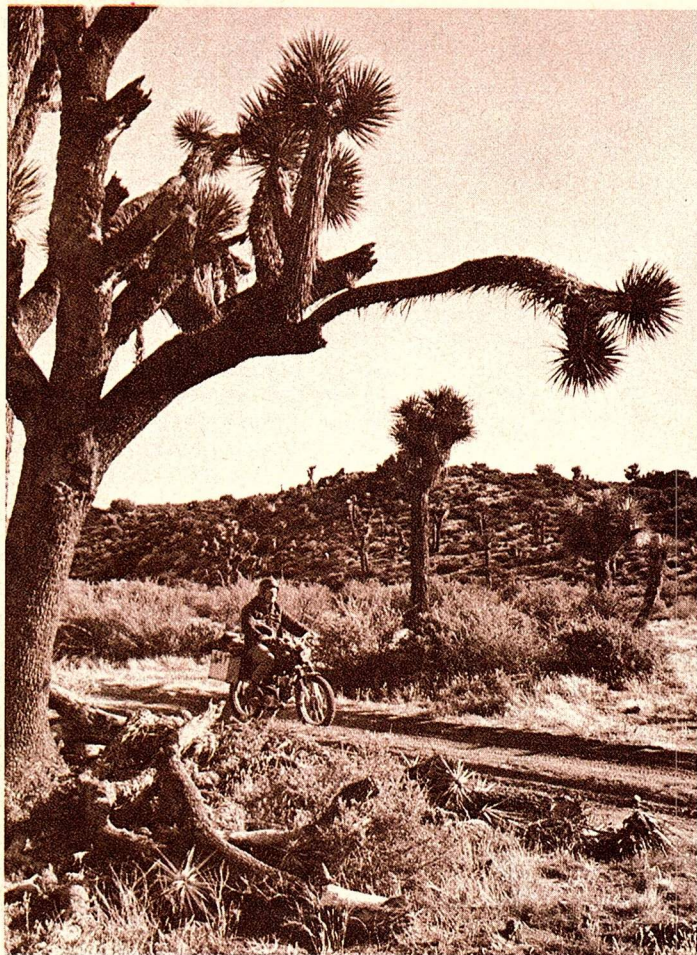
Their grandfather (who lives in Texas) is probably relieved that he doesn't get to see the fellows every day. The last time they were in his state they dropped by for a visit. Old granddad offered them a chance to carve out a racetrack on his farm property, so while they were there they could practice. Gary took his tractor out on the back forty and proceeded to carve out a full-scale motocross course—right across his carefully terraced fields, down through the little river—he really made a mess without meaning to. Old granddad was furious—all he thought they were going to make was a little circle track!

On top of that, the boys left some of their tools there, and it seems as though they caused grandpa some grief, too. He thought they were regular tools, but they were metric. With not the best eyesight at his age, he never saw the difference and went ahead and used them on his tractor. Needless to say, he wound up with some skinned knuckles and stripped bolt heads and called to tell them not to leave any of those "overseas" tools there again! Some days you just can't win, even when you're not racing.

Their father's major gripe seems to be their dietary habits. They both have a penchant for Hostess Twinkies, especially Gary, and Dad is forever raging an unrelenting battle to curb the habit. I just don't think he'll ever win because you know how the Jones boys will be the Jones boys....



Photos by David Gooley and Associates



ABOVE LEFT/Joshua Trees, patriarchs of the American desert, make an attractive backdrop to a dirt road.

ABOVE RIGHT/Rhyolite, Nev., a forgotten boom town on the Nevada desert near Death Valley, makes a striking contrast to the open country around it. Less than ten people still live here.

BELOW LEFT/Located in Yucca Valley, Calif., Desert Christ Park makes an interesting place to visit during a ride through the High Desert country of California.

BELOW RIGHT/Located at Belmont, Nev., a small ghost town near Manhattan, this courthouse is almost all that is left on a former county seat that boasted a population of several thousand people 100 years ago.

MY YAMAHA 100 skipped over the loose sand beneath its knobbed tires without a second's pause. Dodging a chunk of cholla cactus with wicked looking spines, I crossed a dry wash and spotted the Keys ranch house ahead, snuggled in the dry folds of a natural box canyon. Already the engine whine bounced off the boulders, adding an eerie tone to the apparently deserted buildings.

Dismounting under the shade of a desert Mahogany tree, I looked around. The ranch house was made from weathered lumber that had never seen a coat of paint—at least in the last 50 years. Sandblasted by the winds that lash this part of California, it looked more like a pile of scrap lumber than a man's home.

The brown, wrinkled leather face of Bill Keys appeared in the doorway, his eyes closed until they looked like slits as he studied me. A worn felt hat, shapeless with age, was pressed down on his head. A dirty flannel shirt, open at the neck, covered his upper torso. The rest of the old man was hidden by the screen door of the house.

"Well?" came the gruff response. Slipping my helmet off I smiled and started toward him. "Mr. Keys," I heard myself saying, "I have come to chat with you about Johnny Lang and his lost mine cache. I've heard that you knew him."

The old man nodded, "I knew him. I buried him. He was a greedy man." Pushing open the screen door, Keys came toward me with a limp, supporting his weight on two canes. My 2-day trip across the desert was about to be

rewarded with an interview. I couldn't believe my luck.

I had started my odyssey in Los Angeles where I picked up my new Yamaha trail bike at the headquarters of the Japanese motorcycle company, determined to follow the old immigrant trails that criss-cross Southern California and Nevada. Turning off the freeway near Banning, Calif., I had headed into the high desert, following a winding course south of Yucca Valley, I turned into the Joshua Tree National Monument on an old trail once used by freight wagons and cattle rustlers.

Of all the men who knew the high country, and the desperados who once fled there for safety from pursuit by lawmen, only Bill Keys was left. Miner, rancher, scout, gunman, and road builder, Keys had lived in the desert for many decades. He had seen the tides of cattle rustlers and killers wash across the sand, to be replaced by miners and finally tourists.

A tough, hard-bitten man who asked no favors, Keys once spent time in San Quentin for a gunfight over water rights that he won—by putting a bullet into the heart of a man trying to claim land he didn't own. Erle Stanley Gardner, the ace mystery story writer, had championed Keys in his famous "Court of Last Resort," freeing him of the charges after serving several years of his term.

Keys came home, took up life where he had left off, surviving in his self-contained kingdom in the heart of the Joshua Tree country—asking no favors and getting none. During his lifetime, Keys had owned and operated a number of mines. One of the most promising was called the Desert Queen. It was probably as rich a mine as was ever worked in this part of the West; but like most strikes it played out, leaving Keys to seek another way of earning a living.

One of the men Keys knew was Johnny Lang. In hopes of finding out about the mysterious Mr. Lang I had come to see the retired prospector. I was prepared to hear a strange tale, but what followed astonished me. I copied my conversation with Keys down as carefully as I could, and briefly here it is.

Johnny Lang carried the exact location of his gold cache to the grave, but Keys remembered enough of the miner's activities to piece together an approxi-

mate location. If Lang's gold is ever found, it will become the property of the United States government, as it is buried on Monument land.

Lang himself, as Keys recalled, was a strange man. The son of wealthy parents, he was educated in Saint Louis and could have led a cultured life there. Instead, he came West and adopted the rough habits of a desert miner. During the 1890s' heyday of gold discoveries in the high desert, Lang bought out a prospector named Dutch Frank Diebolt, who had a rich claim somewhere south of present-day Ryan Mountain.

After taking a partner named Ryan, the Eastern dude started to work his new holdings. Calling the property Lost Horse Mine, the pair immediately established a small headquarters in an adobe building, with a small mill to work their holdings and ore. The adobe still stands near Ryan Campgrounds, but it is on private property.

As the partners prospered, they ordered a 10-stamp mill shipped to them from a Chicago foundry. After building a crude road to their mine, the mill was freighted over the rough country by wagons. Erected near the shaft, the mill quickly proved its worth. Production increased as soon as it went into operation, and profits soared.

Deciding to operate on a 24-hour basis, supervision of the mill was divided between Ryan and Lang. Lang took the night shift, and his partner's brother the day. Things appeared to run smoothly for a time, but it gradually became apparent the day shift was producing more wealth than the night crew. At first it was explained by the difficulty in working at night, but as each day passed, production differences between the two increased.

Eventually Ryan discovered enough evidence to convince him Lang was high grading the amalgam from the mine each night, but he couldn't prove the charges. Deciding the best way to end the thefts was to buy out Lang, Ryan proceeded to do so. Once he had control of the claim, Ryan ordered his former partner off the land at gunpoint.

Several years later, the mine became unprofitable and was shuttered by Ryan. This was what Lang was waiting for. Returning to his former haunts, he started to collect his stolen amalgam. The money paid to him by Ryan was >

THE CALIFORNIA-NEVADA DESERTS

The Desert is More Than

Something to Race on. It is a Place of Discovery and History, of People and Things / By Frank Taylor

gone and his attempts to find a new mine had failed, but now he had a rich horde of nearly raw gold to dig up at leisure.

Treks to recover his stolen gold began about 1917, Keys thinks, and continued for nearly ten years after that. Twice a year, Lang would come to Keys with gold, almost always the same amount, \$980 worth. Keys would ship this with his own ore to the mint in San Francisco, taking the suspicion off Lang—because he couldn't prove he had a claim.

During the winter of 1926, a bitter cold wind swept through the high desert, bringing in its wake deep snowdrifts. Now an old man, Lang was still driven by greed, and unwisely started out to his cache at the Lost Horse Mine. He must have found what he went after, then started back. On his return, death overtook him in a lonely camp on the open desert, and Johnny Lang left this world's cares behind him.

When Lang didn't reappear, Keys and three of his friends started to look for him. They came upon the prospector, still wrapped in his bedroll, and nearly frozen solid. A grave was dug, and his canvas sleeping bag was used as an improvised coffin.

The miner's death closely paralleled that of his father, who also perished in a snowstorm, but in Alaska. Both men had died with money in their pockets—Johnny with rich gold amalgam, his father with American greenbacks. Both men had been warned about making the trip because of bad weather conditions.

Years later, Keys carved a granite headstone for his old friend, and used it to mark the spot where Lang had died. Keys was no longer sure how much gold was left at the Lost Horse Mine that Lang never had a chance to recover, but he assumes it must have been considerable.

Keys gave me a few clues about the treasure that sounded very intriguing. He knew, for instance, that Lang used a small clay pestal to hold the ore, then placed a rock over it. The clay crucibles were then buried near his cabin each night. Each one was probably worth \$1000 then, and twice that amount today.

The sun had sunk behind the hills by the time Keys finished his story, and I was invited to spend the night at his ranch, camping in the yard near his reservoir. After spreading out my bedroll and settling things down for the night, I went back to the cabin and Keys talked far into the night about his life.

I learned, for instance, he had once been a partner of Death Valley Scotty, and had been accused of cattle rustling—but never convicted. His dim blue eyes lit up at the suggestion he had once been on the wrong side of the law, but he refused to say more.

With dawn creeping over the desert, I waved goodbye to Bill Keys for the last time—he died a few weeks after I left him. Stopping for a few minutes at the Keys' family cemetery where Keys' wife and children lay buried, it was impossible not to be touched by the hand-hued tombstones Keys made for each member of his family. A paved road leading to Salton View cuts cross-country past the grave of Johnny Lang. Less than hundred feet south, a dirt road cuts to the left. This is the road to Lost Horse Mine. For the first few miles it follows the flat floor of the valley, then it abruptly cuts into the hills.

I was grateful for the quick shift lever on the Yamaha that allowed me to change gear ratios. It was certainly needed to climb the rough mine road and dodge the big rocks, most of which were the size of a man's head, that littered the trail. It was an easy ride of about five miles to the deserted mine buildings through hillsides covered with Yucca plants starting to burst into bloom.

The most dominating feature of the Lost Horse Mine was the mill. Supported by heavy timbers, the 10-stamp mill was stopped in mid-motion when the miners left. Two shacks remain, but they are poised on the verge of collapse. Could one of them have been Lang's? It is doubtful. The foundations of several more structures were easy to find in the brush, so it would be anyone's guess where Lang lived and hid his cache.

Climbing up to the mill, I could see San Jacinto and San Geronio, two of Southern California's highest peaks, to the west. Both were snow crowned and stood like sentinels in the distance. I cleared off a smooth piece of land, and set up camp. A cold wind had started to blow, and before I set out for Pinto Basin, another mining camp, I resolved to get a good night's sleep.

I took a little-known road over the hills the next morning that led to the broad Pinto Basin, once the haunt of prehistoric man, and a favorite campground of local Indians. Two roads slice up the basin, and the hills are dotted with abandoned mines. One of them, the Gold Bug Mine, yielded enormous riches before closing.

The bike hummed through the choking dust that blasted me when hot winds tore across the landscape. I was heading for a mine known as Virginia Dale to look over the ruins I had heard about. Below the mine in the shifting sands lay the almost forgotten community of Virginia Dale. Not a building remains of this town, but the cemetery is supposed

to be worth a visit—if you can find it. At the mine, I explored ruins, checked out a shaft that might yield a few gemstones, and enjoyed the view which stretched for miles in all directions.

I could trace the old Indian trail that once connected the hot springs at Palm Springs with the Mojave Desert and Colorado River. The path probably hadn't been used for at least a century, yet it was still easy to spot in the hard sand. Infrequent rains prevent them from being washed away. Souvenir hunters like to follow these trails, because many relics are frequently found which were discarded or lost by passing Indians.

The climb up to the mine was the roughest I have ever encountered in recent memory. Again, the curse of big rocks, rolling loose on the rutted surface, jerked the bike out of control. I found myself constantly slipping backward, or teetering toward the cliff-like edge of the road—which would have meant a few broken bones if I had toppled over.

During one of these bouncing ascents, the Yamaha flipped backward, landing on my head and chest. The crash helmet saved my skull, but I got a nasty set of bruises on the chest. The handbrake lever broke in the spill, but aside from scratches, the bike was fine. A veteran of several such desert trips, I have learned to depend on Yamaha for rough treatment in tight spots like this, and the trail bike proved its worth.

Loading up the spilled gear, I started down the steep trail leading toward Twentynine Palms, handicapped by the loss of my front brake. The sun was hot—too hot for comfort—and the dry wind did little to ease the discomfort of riding out of the scorched hills of the Pinto Basin.

Past Amboy, a miniscule wide spot in the road, the bike overheated, and I was forced to stop. Something had clogged the oil injection system, and I spent a grim three hours struggling with the unit, until it was functioning again.

East of Amboy I turned north, skirting the edge of the Old Dad Mountains, following a dirt road that splits the desert between Route 66 and 15. I had decided to camp another night in the desert and was seeking water at Baker to refill my canteens, when the lights of Kelso hove into view. I had never been to this remote corner of the world, bounded on one side by the infamous Devils Playground sand dunes, and on the other by the Santa Fe Railroad tracks.

Once Kelso had been a water station for trains; now it is a pinprick of life that centers around a hotel, of all things! The few deserted houses and an old school speak of a time when probably 100 people lived there—now the sum total is certain to be less than 15, on a good day. (Continued on page 79)

The Kelso Hotel had a bright neon light burning announcing it was open, so I rolled up in the parking lot and dismounted. Shaded by tall trees and a wide, veranda-like porch, the building is sturdy and cool in the summer months. The restaurant was open (I later found out it will serve meals 24 hours a day), even though the place is nearly 40 miles in any direction from a town of any size. The meal was delicious, and reasonably priced, and when I discovered rooms were \$2.50 a night (including a shower) I forgot about a camp under the stars.

I had barely settled into a deep sleep in my room when a roar like thunder shook the room. Awake and out of bed in my underwear, I was ready to make a run for it, figuring an earthquake had struck, when a piercing whistle told my jangled nerves a freight train had just passed through Kelso about ten feet from my room! The rest of the night was spent alternating between the passing trains and sleep. I was happy to chow down in the morning and head for the open desert again. At least there one can be sure of peace and quiet.

Between Kelso and Cima, another tiny place hardly worth a mention on the map, is a paved road. North of Cima and south of Kelso the access roads are dirt, but for this one stretch it is paved. Later an explanation was offered, by a local. During WW II, Kaiser, who ran a mine nearby, had built the paved part of the road for his mine trucks so they could carry ore to the train faster—increasing the profits.

I linked up with Highway 15 at Windmill Station, and rode over Mountain Pass, the last big summit (4731) before reaching the California Line. I passed through Las Vegas without a second look—gambling isn't my bag, and besides after nearly a week in the desert, I hardly looked like a refugee from the sidewalks of Los Angeles.

About 25 miles north of Sin City, I pulled into the Corn Creek Field Station where the only captive bighorn sheep in the U.S. are kept for study. A two or three mile dirt road leads to the station, which was once a wagon stopover in pioneer days on the Austin-Las Vegas run.

The rangers showed me the small museum they had built, and talked about the wiley bighorn they are committed to protect in the government-sponsored range. Since no camping is allowed after sunset, I left early enough to make a run ten miles south to a park just west of the highway to camp for the night.

Before dawn, I was asked to leave by

a member of the sheriff's department, because it seems no camping was allowed. Ho hum. While it was unexpected, I viewed the early morning roust as a chance to beat the heat and head for Rhyolite, Nev., a former ghost town between Death Valley and Beatty, a small town founded nearly a century ago by a wandering rancher.

Rhyolite is probably the oddest ghost town I have ever seen. Built of concrete instead of wood, the ruins speak of a time when gold was worth mining, and a boom town could spring up overnight with a population of several thousand persons. The town is five miles west of Beatty, and is reached by a dirt road that was once the road bed of the Tidewater & Tonopah Railroad.

Again I was surprised to see a train station. The Rhyolite station is built from stone and was supposed to have been the best building of its type in Western America for a community of its size. Now it is 200 miles from a railroad in any direction. It is operated by a couple who open the station up, when the mood strikes them, as a museum. They weren't answering their door the day I stopped, but down the road Tommy Thompson and his wife greeted me with open arms.

The Thompsons live in a glass house—and love every minute of it. Their house is built from more than 50,000 antique beer and whiskey bottles, collected about 1905 by the home's first architect and builder. Now more than 65 years old, the house is a rustic bit of Americana that has become a shrine of history. The empty flasks were imbedded in raw adobe earth to form the 4-room structure.

Sought by collectors, the house is valued at a minimum of \$1 to \$10 per bottle. "We live in a gold mine," Thompson admits, "but we are also helping to preserve a part of history that will never be seen again. If we didn't stay here and keep an eye on things, the walls would be picked clean in a week by collectors."

Thompson is one of those rare persons, seldom seen in these commercial times, who doesn't charge for people to see his attraction. "We have all the money we need," he grinned, tilting his hat at a jaunty angle, "so why charge people? We enjoy having them stop in."

A former accordion player and circus acrobat, Thompson has been working in Nevada and other parts of the world for more than 70 years. He won't give his exact age, but admits he is now in his eighties, and doesn't plan an early retirement.

He invited me to camp near the bottle house and to spend a few days, but I was anxious to head up the road, and declined his hospitality. As the bike roared to life, a dozen dogs from the Thompson kennel started to bark. It

was a noisy send-off from this peculiar town with less than eight residents, but somehow it seemed to fit the rest of the oddball nature of Rhyolite.

I had a long ride to my next planned stop, Goldfield, almost 70 miles away. The little Yamaha was dependable, but slow on the highway, and I figured I had better give myself all the lead time I could. The late afternoon sun was casting deep shadows across the deserted street of Rhyolite as I waved farewell to the Thompsons and started north.

It was a tempting thought to turn west and make a detour through Death Valley with a stop at Death Valley Scotty's Castle, but it was late May and the temperatures in America's Basement were starting to soar into the 120-degree region, and it was hot enough were I was. Traffic between Beatty and Goldfield was heavy, and I longed for a bigger machine that would have enabled me to keep pace—but that was not to be. At least I was getting better mileage than anyone who passed me, for whatever consolation that was.

Once a booming gold mining center, Goldfield is like many other towns in Nevada, a mere shadow of its former glory. The hotel is big—over 160 rooms, yet not a soul has lived there since 1945. The rooms still have their original furnishings, brass beds, and expensive hardwood furniture, installed about 1907, but the only occupant is Arthur Trevor, a resident caretaker.

It was after dark and I was anxious to find a camping spot, so I followed a trail until I was outside of town and the town lights were only a flicker on the horizon. The crickets kept me company as I made camp. This particular evening was one of the best on the trip. A soft, warm breeze was blowing across the desert from Rabbit Springs, a canyon directly opposite my camp about four miles.

After riding around the remains of Goldfield for about an hour, I turned north again, this time for Tonopah, a modern city that started as a boom town in 1900. Passing through Tonopah to the curious stares of school children, I went east six miles to Nevada Route 8A that winds through Smokey Valley between Austin and Tonopah.

The road is funneled between two mountain ranges, the Toiyabe on the west and Toiyabas on the east. It was a smooth, pleasant journey to my first stop, Manhattan, a tiny community perched on the slopes of a steep canyon. I found little in Manhattan to excite my interest, although it is apparent this too was once a busy place.

A quaint old church stands on a hillside overlooking the town, but it hasn't been the location of service in two decades—if not more. Heading west, I left the poorly maintained blacktop

(Continued on page 98)



HAVE YOU EVER undertaken strenuous and extended physical effort in a hot, dry climate? Then you've probably experienced hypohydration, even if you didn't recognize it for what it was. For a motorcyclist, a long race or enduro through the western deserts is the condition most likely to cause hypohydration, but any vigorous cow-trailing during the summer months burns enough water that hypohydration can strike anyone, anywhere in the country.

At best, the victim may suffer lethargy and exhaustion, which he probably attributes to being out of shape. At worst, he may die from lack of water, and at least one such case has been reported in the motorcycle press. The most common effect of mild hypohydration is to impair the rider's physical and mental ability, possibly forcing him to drop out of a race by choice or by crash. The problem is serious enough in California desert races that there is some current talk of requiring each rider to carry a canteen of water.

Surprisingly, most dirt riders know very little about hypohydration...and most of what they do know is wrong.

For example, most riders say "dehydration" to describe a deficit of water, though this implies the removal of *all* water, leaving the body the consistency of instant coffee. The more accurate term, introduced by space scientist R.E. Johnson in 1964, is "hypohydration." This means a lack, or deficit or abnormally low level of water in the body which, of course, is the situation that actually concerns us.

Normally the body is about two-thirds water by weight. The proportion of water is ordinarily regulated within plus-or-minus a quarter of 1% of total equilibrium body weight. (All percentages will be given in terms of total equilibrium body weight.) Since a pint of water weighs just over 1 lb., this means that an average-sized man, free from thermal and physical stresses, will

ordinarily regulate his body fluid within plus-or-minus one small bottle of Coke. The onset of hypohydration is usually taken as the loss of an amount of water equalling 2% of total equilibrium body weight. Hypohydration in an average-sized man begins at a water deficit of 1-2 quarts. With a water deficit of 2% he'll experience some loss of efficiency and a fair amount of discomfort.

A water loss of 10% causes marked discomfort, clear bodily symptoms, and a considerable loss of physical efficiency, endurance, strength and speed. However, these effects are completely reversed when the lost water is replaced. Experiments demonstrate that 10% hypohydration has no permanent after-effects, even if it is repeated many times.

The maximum tolerance for hypohydration varies somewhat among individuals, depending on attitudes, motivations and emotions at least as much as on physiological differences. Ambient temperature is very important, too. In temperatures below 80-degrees F one might be able to survive as much as 25% hypohydration, but a 15% water deficit may prove fatal above 90-degrees F. Note the double effect of temperature—the hotter the air the more water is lost, and yet tolerance for such losses is lower.

In ambient temperatures above 92-degrees F the body absorbs heat from the air and sun faster than it can radiate heat back out. This places the full burden of regulating body temperature on evaporative cooling—sweating—which means water loss. As you know, it is essential for motorcyclists and other mammals to regulate their body temperatures within quite narrow limits. Heat exhaustion, sunstroke, heatstroke, and heat prostration are the names variously given to a group of related disorders characterized by collapse, coma and death, and stemming basically from a loss of control over body temperature. This will happen when so

much body water is lost that a person can't sweat enough to continue providing the necessary amount of evaporative cooling. From the viewpoint of temperature regulation, a 10-degree increase in air temperature from 80-degrees F to 90-degrees F is much less significant than a 10-degree increase from 90-degrees F to 100-degrees F. The latter increase reverses convective and radiative heat transfers so that heat flows *into* the body by these means, and it requires that the body obtain all cooling by evaporation of sweat.

Temperature control is easier if the body is covered with light clothing than if the skin is bare. That is, more cooling per unit of water evaporated is achieved, or less sweat is lost for a given degree of cooling. This works out automatically for motorcyclists, who have to wear some clothing to protect against abrasions, anyway. Dirt riders also benefit from being up off the ground on their machines. On a hot day, it is 30-45 degrees cooler a foot above the ground than it is right on the deck.

On the other hand, the very nature of dirt riding prevents taking advantage of two main ways of cutting water loss—staying in the shade and limiting physical exertion. The more active one is, the more internal heat generated, hence more sweat has to be evaporated to get rid of this excess heat. Thermodynamically, this is just like a car that runs cool cruising on level roads, but overheats when developing extra power to pull up a long hill. Moving along in the open on a bike is a mixed blessing. The breeze helps to evaporate sweat, so the rider stays dry—he won't be drenched with sweat like a sewer cleaner. But this also means a good deal of water can be lost without ever being aware of just how much he's really sweating. In this way, hypohydration can sneak up on a person.

Since you can't avoid the conditions for hypohydration, be prepared to rec-

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TECHNICAL: **THE DESERT, WATER AND YOU**

Arid, Dry and Hot This Place.

**The Motorcyclist More Than Anyone Should Know His Bodily
Needs to Avoid Disaster / By J. G. Krol**



PAUL MARTIN gazed out at the brown, lifeless desert around them. The desert was ringed with equally brown and lifeless-looking mountains. They looked so close that you should be able to walk to them in a half hour. Yet Paul judged them to be at least 20 miles away. Their first view of California. Disappointing. He thought of the green New England woods they had left 3000 miles back.

"Looks pretty bleak," he said to his wife, Mary.

"Maybe it's just the time of year," she said hopefully.

"Yeah. Anyway we're still about 300 miles from Los Angeles. Let's not judge all of California by what's here."

From the back seat, Mike, a freckle-faced boy of six, made his presence known: "Daddy, can we have an ice cream?" He was acting as spokesman for his sister, Sharon, a year and a half younger.

"We'll get you one when we come to the next town, Mike. But it may be quite a ways so you'll just have to be patient." He knew the kids were hot and dry. He was just grateful that the air conditioning was doing its work well and that their 3-year-old station wagon hadn't overheated yet. Crossing the Colorado River into California he had noticed a large number of cars were pulled to the shoulder of the road, their hoods raised and steam billowing out. When they passed through Needles the temperature in lights outside a bank had been 115. He had taken the precaution of buying a desert water bag to hang on his front bumper. Now he kept his fingers crossed that they wouldn't have to use it.

"I wonder if this is the kind of country they have the hare 'n hounds in," he said to Mary.

"Hare and what?"

"Hound. Hare 'n hound. You remember me telling you about the cross-country motorcycle races they have out here in California. Like we saw on television."

"Oh sure. How could I forget? Are you still wanting to get involved with motorcycles again, then?"

"You bet. Look, sweetheart, I had a bike when we got married, remember. And I sold it when Mike was due because we needed money for him and

the nursery and all of that. But now, with the company giving me a big raise to transfer out here, I think I can afford it again."

"Just don't forget that we are going to have some big expenses getting settled into a house, getting furniture, a second car for me and who knows what all else."

"Well, maybe I won't get one right away. But as soon as possible."

"I thought you had long since gotten all of that out of your system. I mean after all, Paul, you're 33 now."

"I don't know that I'll ever completely get bikes out of my system. Anyway, 33 isn't exactly an old man, you know."

It was a couple of months later that Paul started shopping for a bike. After visiting several shops he returned to the one nearest his home. They had seemed like a friendly bunch in there and he figured if he was going to get involved in desert racing he would need more than just a bike. He would also need advice.

"Hi," the dealer smiled at him, "I see you're back."

"Yeah, I guess I am," Paul returned his smile. "Like I told you before, I rode bikes for several years back east. Mostly street, but I did a little woods riding, too. Now I want to get into this desert racing."

"You came to the right place. I'd suggest this 250. It's not too temperamental, so you can use it for just going trailing or even riding around the neighborhood in the evenings. Then when you get ready for some serious racing you bring it back in and we'll get it set up properly."

"I dunno about a 250. Seems awfully small. I always rode the 40-inchers before."

"How long ago was that?"

"Oh, seven, eight years ago."

"Well, things have changed a lot since then. The 250s today are a far cry from what they were then. In fact, if you do get a big bike, I guarantee you'll not be able to go as fast on it as you can on this 250. And it'll cost you more, besides. I'm sure you could even get by with less than a 250 right now. But pretty soon you would master a smaller bike and want more power. No, this is the best choice for you."

The first couple of weeks that Paul

owned the bike he just rode it around the neighborhood. Then he went out to the desert on a Sunday with another rider who worked where he did. They left early in the morning, taking a cooler of beer, Gatorade, sandwiches, potato chips and cookies. Paul felt eager, even excited. As the sun came up they were already 50 miles north of Los Angeles. Paul noticed that the desert wasn't quite as brown and barren here as it was where they entered California. There was more vegetation. Greasewood bushes, Joshua trees and Yuccas were more evident. Amidst the brown there was green. Still, the overall impression was one of vastness, openness, of a hard land, a land that survived with almost no water.

As if reading his thoughts, his friend, Jack, said: "There it is, the Mojave Desert. Like one great huge playground for motorcyclists. Or it once was. Not near as much of it left to ride on as there was just a few years ago. And it looks like we'll be losing more of it. It's the ecology thing that everyone is so worried about. I don't think the bikes do much damage to the desert. I think it's the noise thing that mostly irritates people."

Depressed by the trend the conversation was taking, Paul changed the subject: "Is there much animal life on the desert? It looks so dry you wouldn't think it would support much."

"Oh, you bet there is. Plenty of life. Zillions of rabbits. More of them than most anything else, I guess. And all kinds of little ground squirrels, field mice and the like. And there's coyotes, tortoises, roadrunners. And when you get up into the mountains there's deer."

Paul noticed that most of the traffic was other motorcyclists with bikes in pick-ups, vans, on campers, trailers. And most had number plates. "I guess there is a race someplace today," he said.

"There is at least one race most every Sunday," Jack answered.

"Well, this must be a big one judging from the number of bikes."

"Maybe. But even the small ones get 4 or 500 entries."

After they had unloaded the bikes, had sandwiches, and warmed the engines, it was finally time to go. Paul followed Jack, staying a distance behind so as to avoid the dust he was kicking >

YOUR FIRST RACE: **THE NOVICE**

What is it Like

to Race Through the Sand Washes and Puckerbushes? Join This
Rider and See For Yourself / By Don Gately

NOVICE

Continued from page 83

up. He rode gingerly at first. The sand seemed very difficult to steer through. His off-road experience back East had mostly been on hard-packed earth. He had encountered a little mud in those days, but had avoided it when possible. Now he felt stiff, rigid. He knew he had to master it to the point where he could relax. Up ahead Jack had stopped and was waiting for him. He came abreast and stopped.

"When you get in this deep sand, Paul, you've got to turn it on. The faster you go, the easier it is. Sit back on the end of your seat. That way you'll get more traction. Don't hold on to the bars so tight, you'll wear yourself out. Just screw it on and let the bike pick its way. Don't try to steer it, just kind of guide it."

Paul concentrated on doing the things that Jack had told him. And as the day wore on he found himself becoming more proficient. Still he found the sandy washes the hardest part of desert riding. Fortunately for him, only about 20% of the terrain seemed to be sand washes. He was surprised when Jack told him that lots of racers preferred the washes, that they considered them a place where they could sit back and relax. "Like riding a freeway," he said.

Later in the afternoon, Jack took him into a narrower wash where the sand wasn't very deep but the banks were high. He saw Jack ride high up one bank and then drop back into the wash and go high up the other side as the wash curved. He continued to do this, putting his centrifugal force to work for him. Paul tried it—and fell down. He picked his bike up and found that it now had a tweaked set of handlebars. He had bruised his knee on a rock, but other than that he seemed to be all right. Jack returned.

"What happened, tiger?"

"I was just trying to ride the banks like you were doing and I unloaded."

"Don't be discouraged—it happens to everybody. You know what they say—there are only two kinds of riders—those that have fallen and those that are going to. What you were probably doing wrong was going too slow. In order to get up high on these banks, you rely on your speed and momentum to carry you through to the next turn."

Paul had never lacked for guts. He tried it again, this time hitting the banks harder and faster, the way Jack had suggested. When he got used to it he found it was like riding a roller coaster—tremendous fun.

It was after dark when they reached Paul's house. While they were unloading his bike, Mary came out to meet them.

"Did you have a good time?" she asked. "Fantastic," Paul replied.

While he was showering he began to realize that he was very tired. And that he was stiff. His bruised knee ached. His lips were chapped. His hands had blistered. Guess I'll have to get in shape, he told himself.

During the next couple of months Paul began to exercise. He would run in the mornings before he went to work. At first he was out of breath and his legs ached before he made it around the block one time. But gradually he was able to go farther and farther. When he reached a mile and a half he quit going any farther. About three mornings a week he would make that run. He bought a set of barbells and worked out two or three times a week.

One night a week he would spend as much time as necessary working on his bike. He would clean the air filter, adjust and oil the chain, check the sparkplug, and look for anything that might have vibrated loose.

Every Sunday he went riding, sometimes with Jack, sometimes with other riders he had met at the shop or in his neighborhood. He rode in different areas each time. He knew that he was making steady improvement. Now he had no trouble staying up with Jack, and he found that he rode faster than many of the riders he went with. He felt he was finally ready for desert racing.

He went back to the shop and informed them he was ready to race. They suggested a few changes that would be desirable: A number plate would be put on and the lights would come off. A compression release would be added. And a fork brace. And a holder for extra plugs should be mounted to the frame. Better handgrips would help to stop the blisters. A hop-up kit with an expansion chamber would give him more power. Paul okayed the suggestions. A week later he went back and picked up his bike.

That Sunday he got up at 4:30 in the morning. He donned long underwear, heavy socks, Levis, a sweatshirt and Levi jacket. He pulled on his new lace-up boots, washed his face and went to the kitchen for a bowl of cereal and a quick cup of coffee. He grabbed his helmet, goggles, gloves and kidney belt and went out to the garage. The cold air caused an involuntary shiver. He rolled the bike out of the garage, parked it and went back for his gas can. He locked the garage and returned to his bike just as Jack arrived.

They had no sooner gotten on the road than he told Jack to stop at the first open gas station—he had to go. After a few miles they found one and stopped. In a few minutes they were on the road again.

Jack explained what to expect: "This race we are going to is a hare scrambles.

That means we will run over the same loop twice. It is a 50-mile course so we'll have to stop for gas between the loops. When we get there we have to find the sign-up table. You'll get a pie plate which we'll have to tape over your number plate since you don't have a desert number yet. Then, when the race starts, we'll be lined up abreast with all of the other guys. We'll be facing a smoke bomb. Everyone will have their engines off. A banner will be raised and then dropped. When it drops you crank your bike and take off for the bomb. Got it?"

"I got it. And Jack...would you mind stopping at the next station—I've got to go again."

"Sure. Lot's of guys get the runs before a race. And butterflies. Nervous stomach. It's all the same thing. A top desert racer once told me that he gets 'em too. He said if you don't get the old butterflies you're really not out there to race."

As dawn grew into early morning, Paul saw that there was a steady flow of traffic, all trucks with two or three motorcycles in them, headed north. As they passed through the town of Mojave, Jack said they should begin looking for the lime marks along the highway which would guide them to the location of the race. After a short distance they saw the first mark. They followed it for 10 or 12 miles. Sometimes they would go a couple of miles without seeing any marks and Paul would become apprehensive that they had missed the turn-off and gone too far. But he saw all of the other trucks in front and behind them and realized that his fears were silly. Finally they came to three lines of lime and saw the trucks turning in to a dirt road leading out across the desert. Gazing out on the horizon he saw a dark funnel of smoke.

"Are they holding some kind of race this early?"

"No," Jack answered, "They light the smoke bomb early so that the guys who are there already can ride out and check the course between the start and the smokebomb."

"How far is that?"

"Usually about three miles."

"Can they ride beyond the smoke to practice on the course if they want to?"

"No, that's against the rules. Anyone that gets caught doing that is disqualified. But lots of guys came out yesterday and rode the whole area out here. 'Course they weren't supposed to ride the course then either. But it's pretty hard to stop it. The sponsoring club is busy marking the course and making all kinds of final preparations. But it is a good idea to come out here the day before if you have a camper, and the time. It is always good to be able to get the feel of your bike and the dirt as much as possible before the race. A half

(Continued on page 104)

■ The name Laverda is fairly new to the American motorcycling public, but the bike has been around for some time, having first been imported to this country as the "American Eagle." The Santa Ana, Calif.-based American Eagle firm is now defunct, but the Laverda is alive and well. Edison Dye, the West Coast importer of Husqvarna, is taking over where the Eagle left off. The flow of bikes and parts from Italy won't be of Japanese-style volume, but the situation is certainly better than no bikes at all. The Laverda is sound, and deserves an American audience.

Cycle World Road Test

Could anyone have imagined three years ago that the Laverda (American Eagle 750 Super Sport) would be the basis for one of 1971's most successful production road racers? We'd have been inclined to say not.

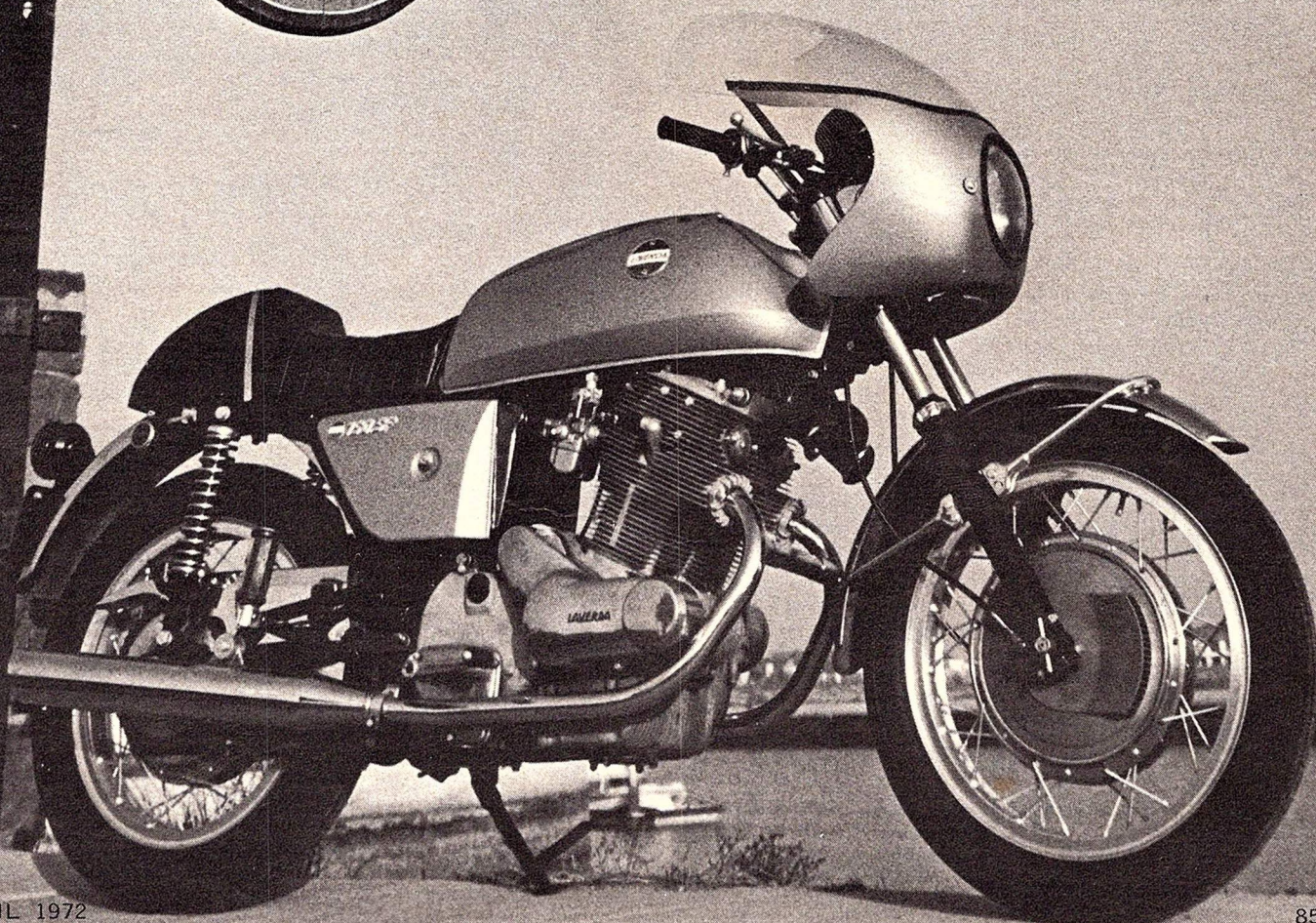
However, the sports-minded Italians at the Laverda factory modified their 750, fettled it as a 750cc production road racer and walked away with 1st, 2nd and 3rd places at Barcelona, Spain; 1st, 3rd and 4th places at Zandvoort, Holland, and 2nd, 4th and 5th places at Le Mans, France. These three races were all over 12 hours in duration and the factory team of three machines finished each one with a high placing. Obviously this wasn't just luck, and the 750 SF lives right up to the reputation gained by its production road racer brother.

There are two versions available. The GT, a milder version of the SF, features less compression, milder cams, no exhaust balance pipe, a dual seat, and small detail differences including a slightly less rigid frame and less steering trail to make it more suitable for in town riding and medium speed touring.

The 750 SF, on the other hand, is a sporting man's motorcycle. Low, narrow (26-in.) handlebars, a headlight fairing and a short racing-type seat set the scene and rather rear mounted footrests make the rider feel like he's on a road racer. Quite heavy at 507 lb. with half-tank of fuel, the 750 SF is fairly clumsy at ultra-low speeds but loses this feeling at speeds above 20 mph or so and begins to feel like it should...a sports/roadster with a racing heritage.

LAVERDA 750 SF

Eagle Fans Rejoice!
The 750 Rides Again —
With An Electric Starter
And A New Importer



LAVERDA 750 SF

Much of the Laverda's handling comes from race-proven frame and steering geometry. A double cradle-type frame with a multitude of top tubes supports the engine at the cylinder head with four mountings and the rear of the crankcase/transmission casting with an additional four mountings. There are no front down tubes; the engine just sort of hangs in there like the Honda Hawk series motorcycles of the mid-60s. If the frame tubes and engine unit are suitably strong, there is no reason to install front tubes at all.

Utilizing large tubes with sufficient triangulation, the Laverda's frame is strong enough to resist flexing from side loads imposed by vigorous cornering as well as those experienced while riding at speed over bumpy roads. Construction detail on the frame is good: welds are smooth, paintwork is smoothly applied and the whole package "looks" right, even though the frame is on the heavy side.

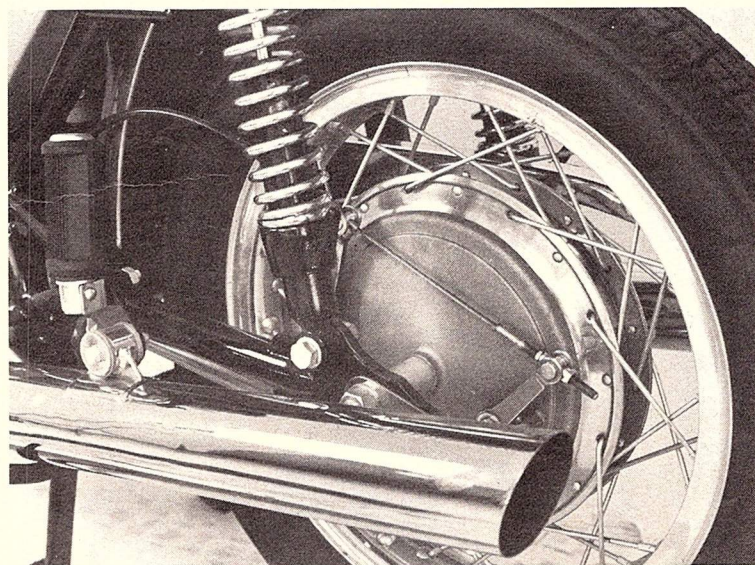
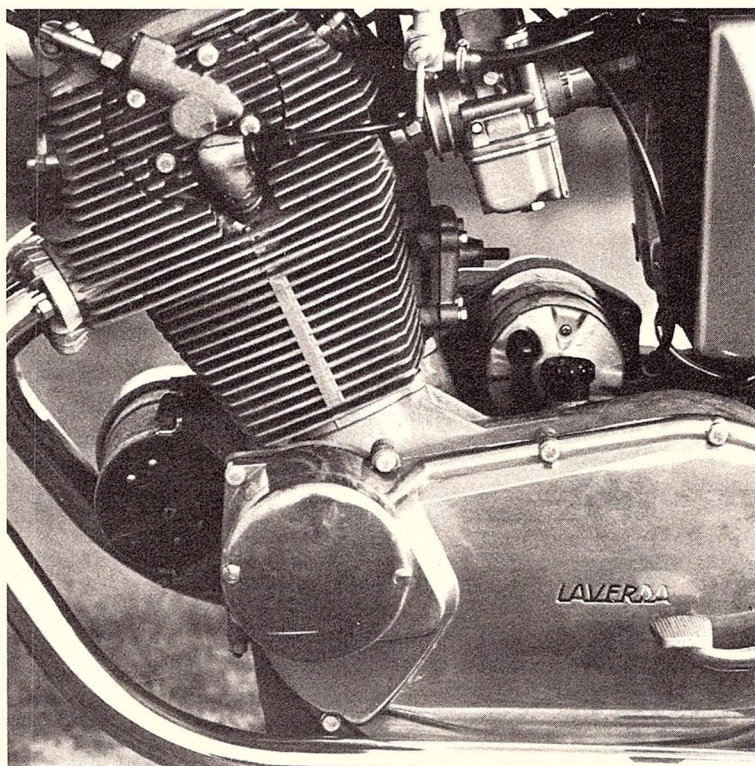
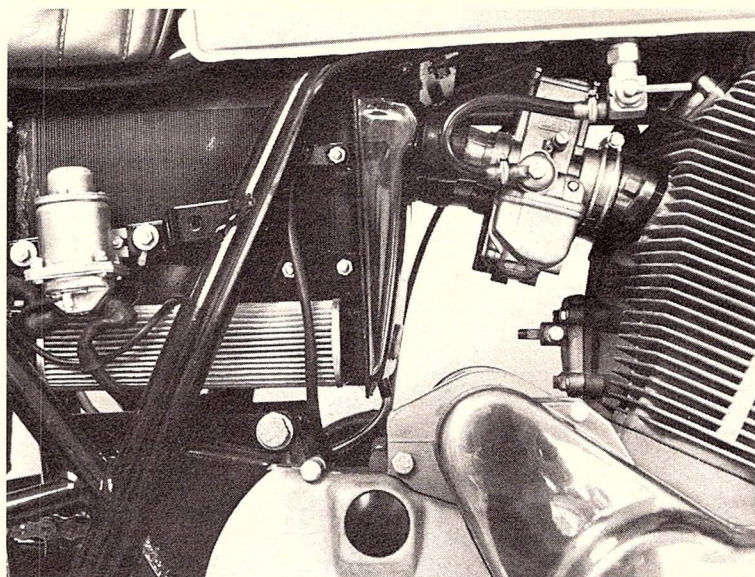
Braking, too, has benefited from Laverda's road racing ventures. Slightly over nine inches in diameter, both brakes feature double leading shoes using two brake arms which pull toward each other, instead of a rod between the arms which requires critical adjustment to work properly. Cool air is admitted to the front brake by a ribbed scoop cast into the brake backing plate, and a fan-type arrangement is employed on the rear wheel. After circulating around inside the brake drums and cooling them and the brake shoes, hot air is expelled through slots in the central portion of the hubs.

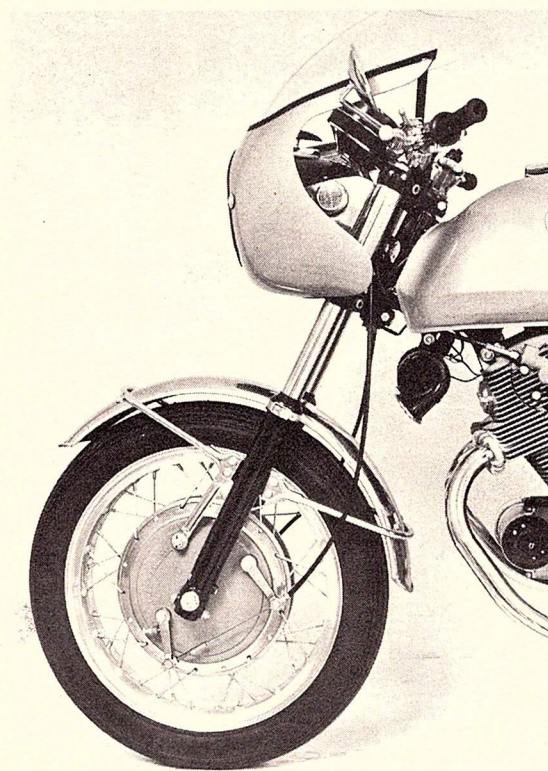
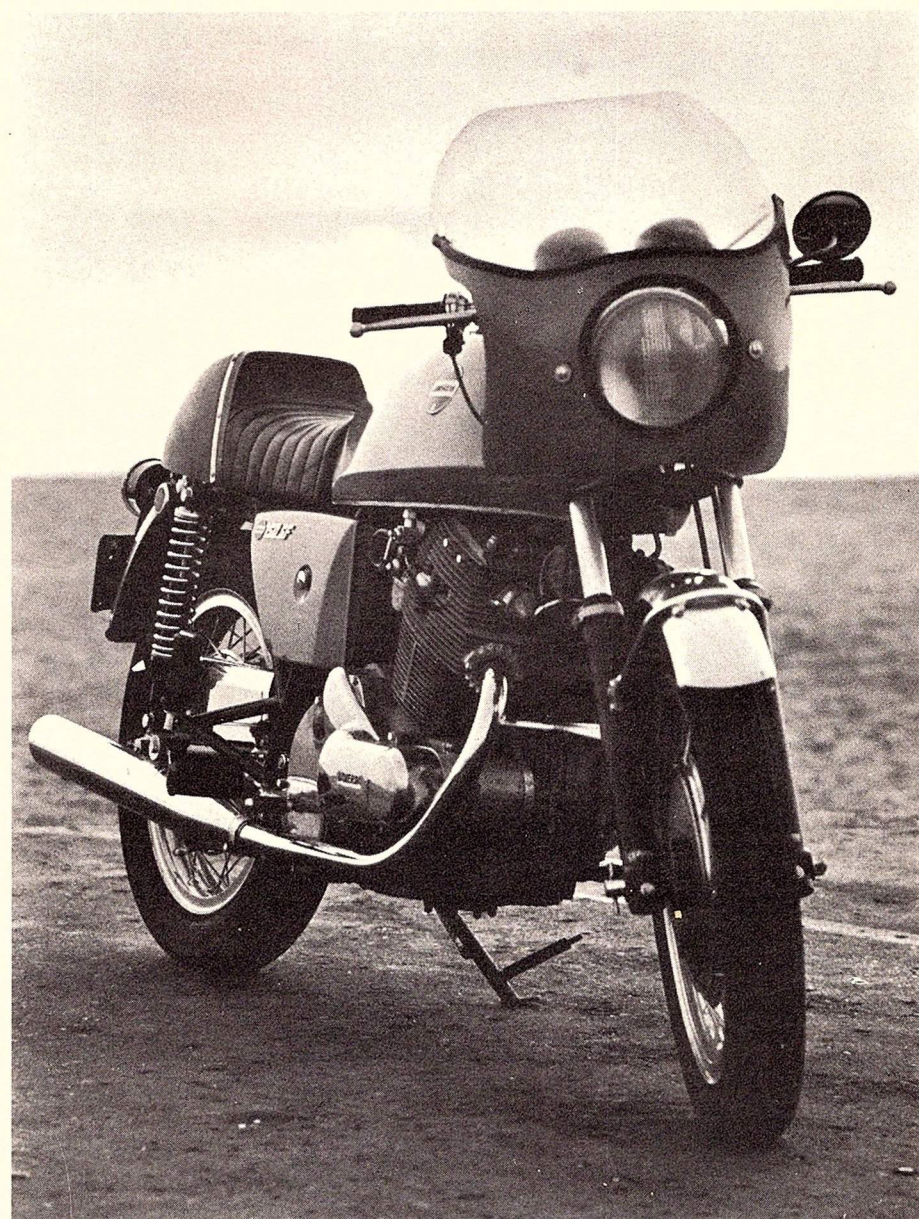
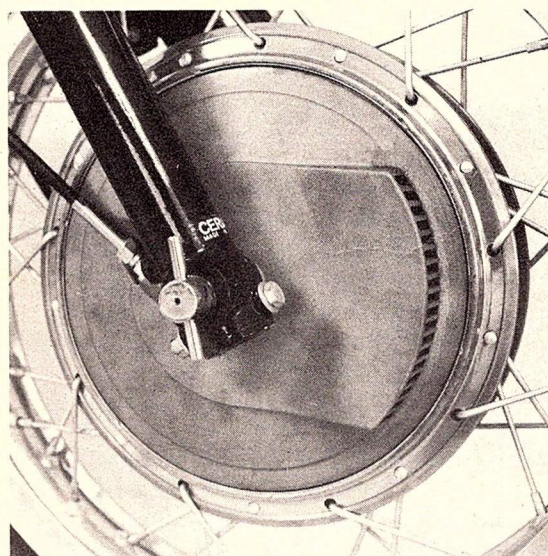
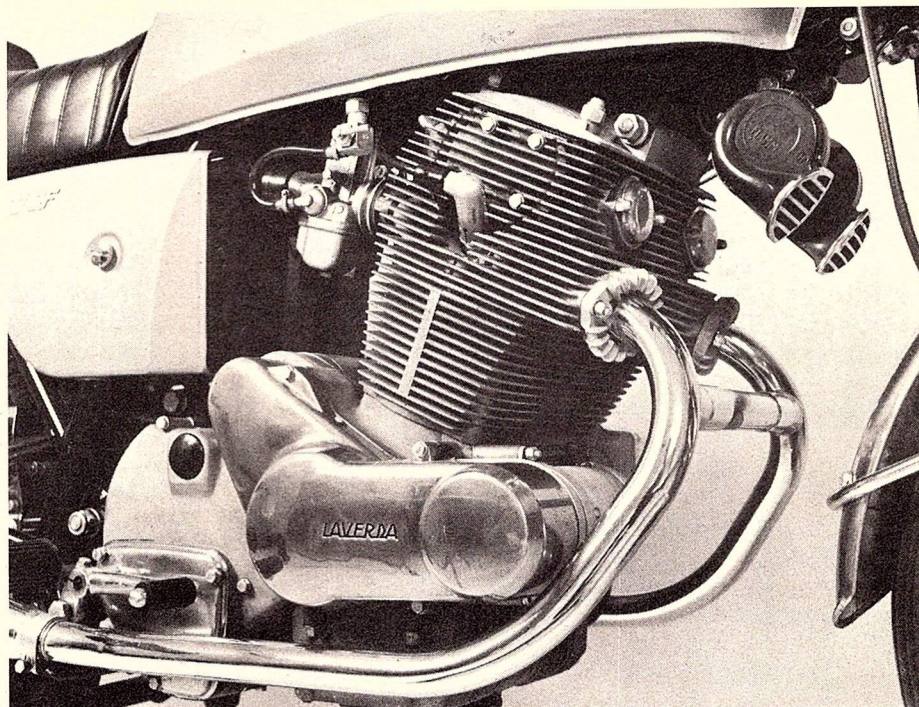
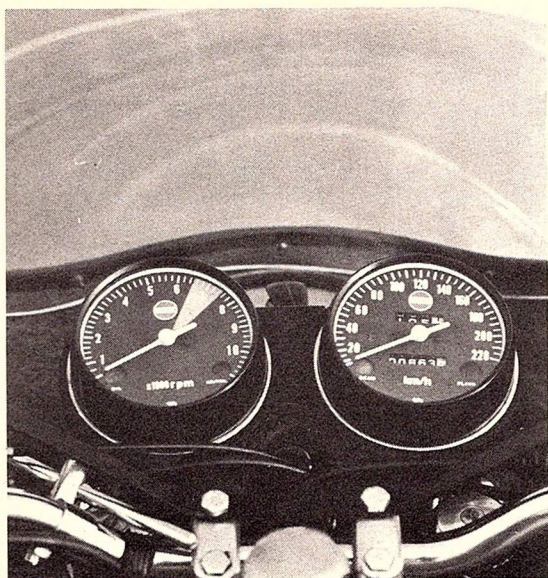
A brake swept area figure of 67 sq. in. for a machine weighing over 500 lb. might not sound too impressive, but the brakes are so well designed and executed that they match the machine's performance with no trouble. In fact, the rear brake must be applied with caution during heavy deceleration or it will lock up. This is caused by the tremendous mechanical advantage afforded by the long brake pedal assembly. It's rather like having a power assisted rear brake.

The Ceriani people have the reputation of producing some of the finest suspension units for motorcycles in the world and those fitted to both the front and rear of the 750 SF are no exception. The front forks are slightly stiff, fitting the nature of the machine, but have more than adequate travel and rebound damping characteristics for fast riding. A nice touch is the pair of aluminum alloy triple-clamps and the aluminum alloy steering damper knob. So precise and stable is the steering that we didn't bother using the damper at all. Also slightly stiffly sprung, the rear suspension units have more positive damping than other Ceriani units we've sampled lately and feature a lever almost 3 in. long for rapid adjustment of the three-position springs for heavier loads.

When we pulled into our favorite gas station for a fill up one of the attendants quipped "that's the biggest Honda Super Hawk I ever saw." Very similar in appearance to recent Hondas, the 750 SF engine is a vertical Twin with a twin-row chain driving the overhead camshaft. But many of the similarities between it and the Honda end here. The drive for the tachometer is located at the left hand end of the camshaft, but the contact breaker points aren't to be found on the right hand side of the head like a Honda. And instead of having a 180-deg. crankshaft the Laverda has the crank throws in the same plane so it fires like a British vertical Twin.

Many manufacturers have adopted the practice of splitting the crankcase halves horizontally instead of vertically, which simplifies inspection and rebuilding, and lessens the number of seams where oil might escape. The Laverda's entire oil supply, which is shared by the transmission and primary drive/clutch, >





is located in the crankcase and is circulated by a double gear pump. After being picked up by the pump the oil is directed to a centrifugal oil filter which spins impurities to the outside of the filter casting. The filter is readily accessible by removing a cover on the left hand side of the engine, and an additional wire mesh screen keeps any large flakes of aluminum or steel from going through the pump.

Four hefty main bearings support the crankshaft. The inner two are rollers and the outer two are ball bearings. With such support, the engine can be spun at high rpm without fear of crankshaft flexing and bearing failures. Strong steel I-section connecting rods ride on double-row roller bearings at the big ends and support the pistons using bronze bushings. Three-ring pistons featuring two compression and an oil scraper ring are used. Compression ratio is 9.65:1.

Getting the engine's power back to the transmission is a problem solved in many ways. The British have traditionally used chains, the Japanese use gears wherever possible. The Laverda follows in the British tradition and uses a triple-row roller chain whose tension is maintained by a spring-loaded roller wheel. A hefty clutch runs in an oil bath and is moderately hard to pull in. However, it takes the strain of drag strip starts without a whimper and is incredibly smooth in operation. A properly adjusted chain is quieter than even a helical cut gear, so the primary drive adds practically no noise to the motor area.

A look at the overall gear ratios will tell the alert reader that this five-speed gearbox would be well suited to production racing. Closely spaced, the gear ratios enable the rider to maintain a good rate of speed while keeping the engine "on the boil" on a twisty road. Shifting can only be described as flawless, or at least after the initial stiffness disappeared. Both mainshaft and layshaft are supported on the ends by ball bearings and the shifting drum is made of aluminum with a steel sheath around it to minimize wear where the shifter forks ride. Gear lever travel is reasonably short considering the

length of the lever itself.

Although quite large as a package, the engine/transmission unit is surprisingly delicate in areas where strength is of minor importance and sufficiently robust where needed. Acting like it does as a frame member requires that certain areas be strong and they certainly are. Finish of the engine castings is particularly good with a sandblast finish on the cylinder head, cylinder barrel and central crankcases and highly polished castings for the outer covers. Not so smooth as the Japanese die castings, but a sandblast finish is more effective in dissipating heat than a smooth one.

Many items on the Laverda are of other than Italian manufacture, and not the least of these are the electrics, excluding the horns. Mention should be made of the Fiamm horns which emit a blast loud enough to wake a sleepy tractor-trailer driver from his air-conditioned reverie. Air-powered versions of these "hooters" come as standard equipment on many of Italy's high performance sports cars and not enough good can be said about them. They're the best motorcycle horns we've ever seen.

The battery is also manufactured by Fiamm, but the generator, starter motor and headlight are Bosch units manufactured in Germany. The headlight is identical to the ones fitted to the pre-/5 series BMW machines and features a round key which is inserted to supply current for starting and running. A turn of the key in one direction turns on the taillight and parking light, and a flick in the other direction turns on the headlight. No kickstarter is fitted to the Laverda so it would have to be given the old run-and-bump treatment if the battery went dead. With a hot battery, starting is extremely rapid. Just close the handlebar-mounted choke lever half way, touch the starter button on the right handlebar and the engine bursts to life almost immediately. Even after killing the engine several times on purpose, the battery supplied enough current to spin the engine effortlessly.

Detailing is above average. A nifty compartment in the rear of the seat can be used to store tools (in addition to a holder under the seat and behind the battery) or small parcels. Aluminum alloy wheel rims are employed in an effort to reduce unsprung weight and beautiful stainless steel fenders with attractive shapes keep road dirt and moisture off the rider. A small handle is welded to the frame on the left hand side to give the rider a place to grab when putting the machine on the center stand.

Chrome plating on the exhaust pipes and mufflers, which has been a weak point on some Italian machines in the past, appears better than average and the mufflers emit a sound that will gladden the heart of the four-stroke enthusiast. Deep and mellow, with just a hint of throatiness, the sound is just beautiful although spirited riding might arouse the local *gendarmierie*. The balance tube between the two exhaust pipes helps mid and top-end power somewhat and reduces the exhaust noise level a trifle. Other items of German manufacture are the Metzler tires, a rib pattern on the front and a block pattern on the rear.

Surprises keep cropping up, even in front of the handlebars. Although calibrated in kph on our test machine the speedometer, as well as the tachometer, are manufactured in Japan and look suspiciously like they were swiped off a Honda CB 750.

Aside from a thin looking paint job on the gas tank and side covers, the 750 SF is a superbly finished motorcycle, but we feel that most American riders would prefer slightly higher handlebars and a longer seat for toting their lasses around. But then, that's what the 750 GT is all about and it will be available for \$60 less than the SF.



LAVERDA 750 SF

SPECIFICATIONS

List price	\$1850
Suspension, front	telescopic fork
Suspension, rear	swinging arm
Tire, front	3.50-18
Tire, rear	4.00-18
Brake, front, diameter x width, in.	9.05 x 1.18
Brake, rear, diameter x width, in.	9.05 x 1.18
Total brake swept area, sq. in.	67
Brake loading, lb./sq. in.	7.6
Engine, type	four-stroke ohc Twin
Bore x stroke, in., mm	3.15 x 2.91, 80 x 74
Piston displacement, cu. in., cc	45, 744
Compression ratio	9.65:1
Claimed bhp @ rpm	60 CV @ 6600
Claimed torque @ rpm, lb.-ft.	N.A.
Carburetion	(2) Dellorto 30 VHB
Ignition	battery and coil
Oil system	gear pump, wet sump
Oil capacity, pt.	6.3
Fuel capacity, U.S. gal.	4.75
Recommended fuel	premium
Starting system	electric
Lighting system	12V generator
Air filtration	dry paper
Clutch	multi-disc, wet
Primary drive	triple-row chain
Final drive	single-row chain
Gear ratios, overall: 1	
5th	4.85
4th	5.87
3rd	6.75
2nd	8.5
1st	11.75
Wheelbase, in.	57.5
Seat height, in.	33
Seat width, in.	9.2
Handlebar width, in.	26
Footpeg height, in.	11.5
Ground clearance, in.	7.4 (at stand)
Curb weight (w/half-tank fuel), lb.	507
Weight bias, front/rear, percent	48/52
Test weight (fuel and rider), lb.	632
Mileage at completion of test	490

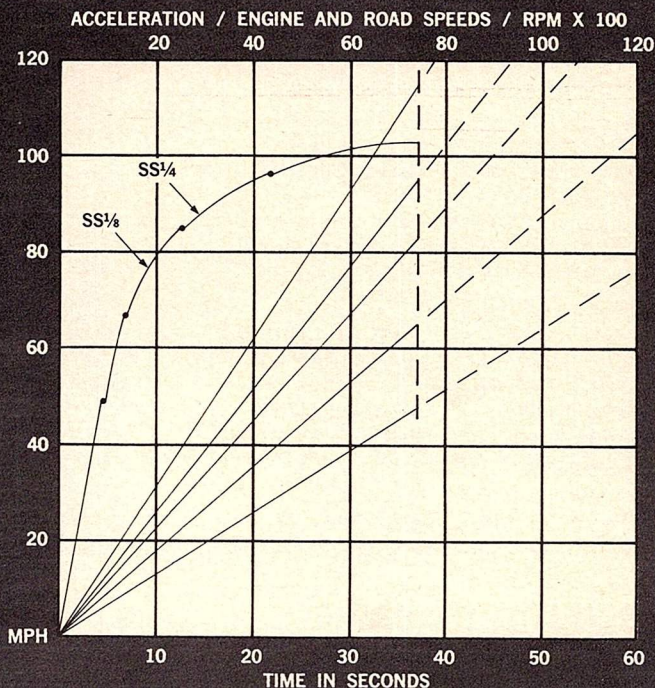
TEST CONDITIONS

Air temperature, degrees F	55
Humidity, percent	70
Barometric pressure, in. hg.	29.90
Altitude above mean sea level, ft.	50
Wind velocity, mph	8-12
Strip alignment, relative wind:	



PERFORMANCE

Top speed (actual @ 6650 rpm), mph	102.89
Computed top speed in gears (@ 7500 rpm), mph:	
5th	116
4th	96
3rd	84
2nd	66
1st	48
Mph/1000 rpm, top gear	15.5
Engine revolutions/mile, top gear	3860
Piston speed (@ 7500 rpm), ft./min.	3640
Lb./hp (test wt.)	10.5
Fuel consumption, mpg	42
Speedometer error:	
50 mph indicated, actually	N.A.
60 mph indicated, actually	N.A.
70 mph indicated, actually	N.A.
Braking distance:	
from 30 mph, ft.	31
from 60 mph, ft.	126
Acceleration, zero to:	
30 mph, sec.	3.4
40 mph, sec.	4.3
50 mph, sec.	5.5
60 mph, sec.	6.2
70 mph, sec.	8.1
80 mph, sec.	10.8
90 mph, sec.	16.6
100 mph, sec.	26.1
Standing one-eighth mile, sec.	9.04
terminal speed, mph	76.14
Standing one-quarter mile, sec.	14.57
terminal speed, mph	87.89



THE TRAILRIDER

This is the second part of a series of columns by Bob Hicks dealing with the philosophy of trail riding. Hicks, publisher of Trail Rider and Cycle Sport magazines, is part and parcel of the enduro and racing scene in New England.—Ed.

STEVE O'CONNELL is a Cadillac dealer I happen to know, because he serves on a trails advisory committee in Massachusetts which I also serve on. Steve is a horseman. We get along OK, mostly because we've learned to talk to each other. Last spring Steve told some people in the Massachusetts Horsemen's Council about me, for it seems they needed help.

Grace Fitzpatrick was in charge of planning the annual cross state trail ride for this group. She had offered criticism of the 1970 ride, which she had entered as a participant, and as a result had been asked to help do the 1971 planning and organizing. Steve told her I knew a lot of trails in the Berkshire Hills in the western part of the state, the planned location for this event.

The horsemen around here indulge in trail riding, it seems. They take 25-mile recreational group rides, and they also compete in enduros. In these latter events, the competitor has to have his horse inspected by a vet at the start to assure the animal's condition. Then the riders leave at 1-min. intervals over a marked 40-mile route. Checkpoints have to be reached on schedule, and points are lost for early or late arrivals, and for signs of a horse being driven too hard. Sound familiar?

The annual cross state trail ride isn't competitive, though. It's a week-long group trail ride which crosses the state from border to border. In 1970 it took two weeks, going 200 miles from the New York state line to the Atlantic coast near Plymouth. For 1971 it was planned to wander 120 miles, covering the 60-mile north to south width from Connecticut to Vermont.

Grace didn't know much about the Berkshire trails. Steve knew some, because he lives in Pittsfield. Grace called

me because I knew hundreds of miles of the trails. Funny thing about the trail biker—he covers a lot of ground, and learns a lot about where there's good riding.

So I attended a couple of meetings of the trail ride committee, and the initial uneasiness at having this MOTOR-CYCLIST in their midst was dispelled when remarkably enough they found I was not only literate and civilized, but had grown up on a farm and knew a bit about livestock. And, of course, I had my Berkshire map. We spread this 8 x 10-ft. composite of some two dozen topo maps on the floor. On it was a red line I had traced from Connecticut to Vermont, using what I thought would be good trails for their ride.

I had marked overnight stopping points at places I knew they'd be welcome, because our bike enduros had been there already. I gave them names of certain landowners they would have to see, for we had already come to know these people in planning the Berkshire Trial. I also noted locations of water for the horses, for we had crossed

those streams on our rides. Here it was on paper, their whole trail ride, in one easy meeting.

It was so easy for them to get to this stage that I became suddenly very important to them. Grace was a really nice woman anyway, with no hangups about bikes, her kid brother had a minibike. And the strangeness at our first meeting quickly dissolved between the rest of the committee and me, as they realized we were all trying to do a good job. I learned quite a lot about horseback riding as a sport, and did not press upon them my interest in bikes.

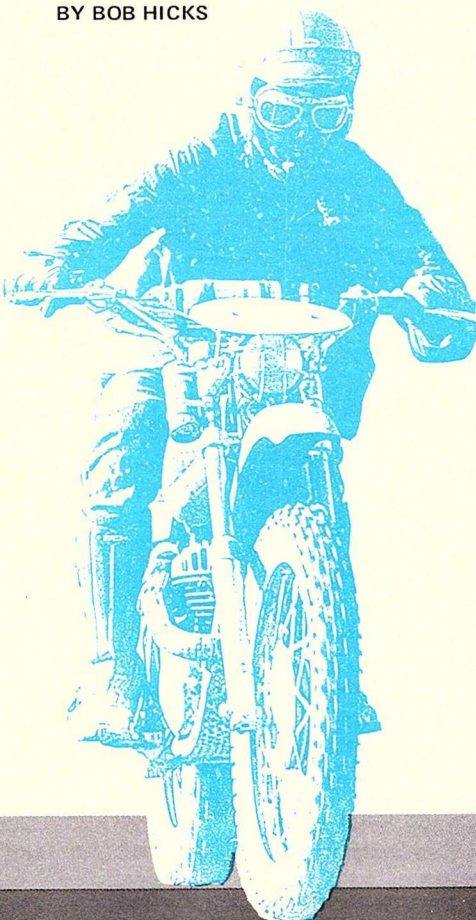
Subsequently, of course, some changes had to be made in my preliminary route. I had figured on 30 miles a day for them, but they decided that was too much day after day, so some shortening of the route was planned, to result in days covering from 15 to 30 miles. One or two nice trails I included were not used when some horsemen checked them out and considered them a bit too rough for horses. It all fell into place as the August week drew near.

The Commonwealth of Massachusetts cooperates with this annual affair, providing overnight accommodation where convenient in state parks, and all the necessary orange route arrows. The Department of Natural Resources also assigns a truck to follow the ride and rescue any dropouts. But, it was up to the horsemen to post the markers.

The nature of horses dictates about two hours maintenance for every hour of riding, and thus the marking would take over a week. No one person had the time, so it was split up. Several volunteers went forth to post markers. Those along roads and dirt roads were posted from pickup trucks, and the trail sections were posted from horseback. Janet Harrington, a girl from Connecticut who does a lot of trail marking for her riding club, did some of the marking. She told me at one meeting that she was thinking of buying a small trail bike to use in marking, because she was wearing her horse out trail marking and couldn't enter the rides themselves as a result. But for this one she still used her horse.

However, as deadline drew near, one longish stretch remained unmarked, so

BY BOB HICKS



A Triumph In Personal Diplomacy

Claude Hill called on a young man he knew in his town who had a trail bike. Sure, the rider would bang up the 30 miles or so of markers; and the job was done in one afternoon. All was ready, but I had not had a chance to see the work out on the trails I had plotted. Bike activities occupied me, as usual.

Fifty horsemen spent a long, sunny August week riding the trail, and the Saturday windup found all but one or two still on hand. They all started at a private field near Connecticut. They spent overnights at Beartown and October Mountain State Forests, where we had held hare and hound races. They stopped at Middlefield Fairgrounds, headquarters for the Berkshire Trial. They spent a layover day at Cummingfield Resort, where many Berkshire riders stay in May. They rode the Henhawk Trail, a Berkshire cross-country test. They spent another night at Dick Nelson's farm, a horseman who years ago invited Al Eames and I in for coffee on a rainy day of Berkshire trail marking. They rode along the powerline through the Babitski farm, where Mr. Babitski always turns the cows out of the pasture to let the motorcycles through in Berkshire time. They climbed old Burnt Hill Road to Heath, where long desolate powerlines annually see the motorcycles struggle through.

Grace invited me to the windup Saturday, but I couldn't go—we were running an enduro school. Grace invited me to the trail ride banquet in October, but I was at the ISDT in England. So Grace came to our house one day and presented me with a special trophy, one that had been carried to several locations for presentation, only to find me absent.

On the trophy are two figures, a motorcycle and a horse. It reads, "To Bob Hicks in Appreciation from the Massachusetts Trail Riders." This trophy has special significance to me. It represents a triumph in personal diplomacy. Horsemen and trail biker had come together in a common effort at promoting the sport of trail riding. Personal diplomacy is something anyone who rides a trail bike should practice. You can make some interesting new friends for yourself and for our sport. ☐



Photo by Henry Bolton

THE HISTORY OF SUNBEAM

BY JOSEPH BLOGGS

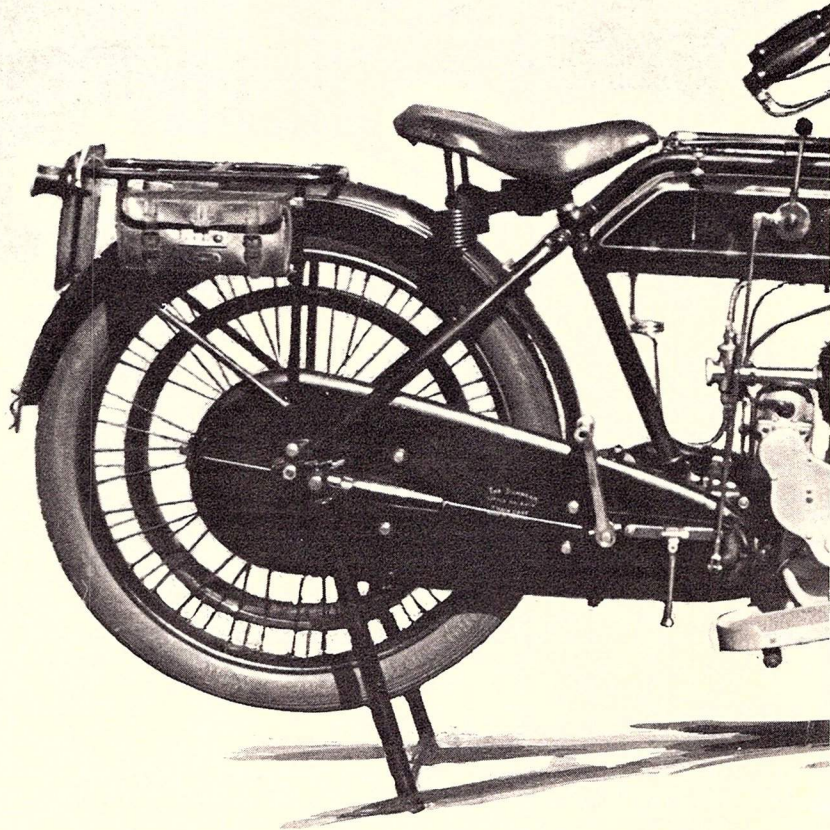
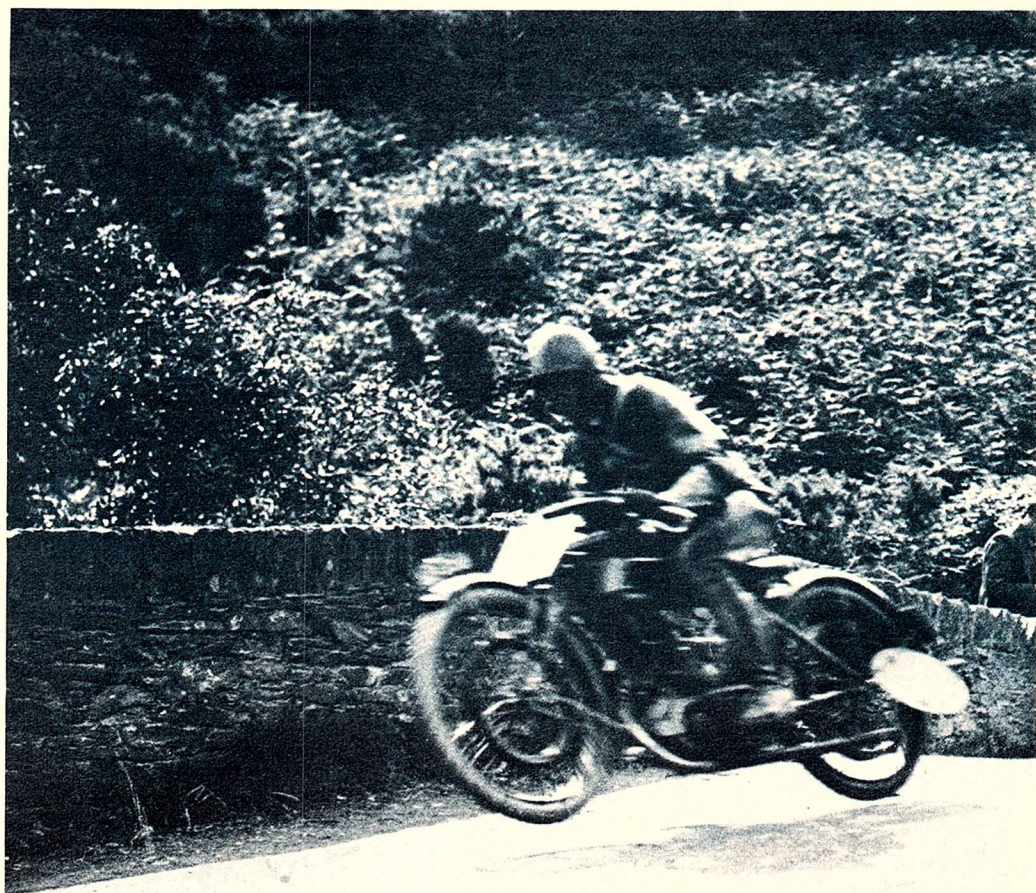
IN THE YEAR 1790, the Sunbeam's fortune was founded by a tinplate plant. From that time until 1937, the last year the skilletmakers kept their identity with the original John Marston Company at Wolverhampton, England, the Sunbeam name was synonymous with quality. Not even Brough Superior, the Rolls-Royce of motorcycles, eclipsed it; the Brough was a product of meticulous screwing together of bought-in components, and Sunbeam, with a few unimportant exceptions, made everything. Scrupulous engineering standards rather than imaginative and forward-looking design was the basis for Sunbeam's unparalleled reputation.

Right from 1914, the year the Marston firm filed its first road racing works entries, it had attracted a goodly share of reputed racers: men like Howard Davies, who deadheaded against all odds with an Indian rider for 2nd place in the '14 Senior, with not a split second's difference in 225 miles; Tommy de la Hay, who won the first inter-wars Senior TT for Sunbeam in 1920; Alec Bennett, who copped the Senior trophy for Sunbeam in '22 before defecting to Norton and Douglas; and, among others, Charlie Dodson, the muscular runt who established a record of 1928/29 Senior TT victories.

Charlie Dodson began his career with Sunbeam by purchasing a 350 that had been successfully raced by the maker. He entered into competition with it on a privately sponsored, amateur basis. His first test was the 1923 Amateur TT, in which he placed no better than 9th in class. This was slightly mitigated by the fact that his carb fell off and was stuck back on again nine times en route.

After four more amateur years of constant improvement, Charlie received the longed-for nod from the Marston talent scouts. He joined the works team, finished 8th in the 1927 Senior TT, and thereby helped the Sunbeam troika to perpetuate its habit of winning TT team prizes. This was the make's, and Dodson's Golden Age in TT annals, 1928/29.

The first of his two consecutive Senior victories was, at 62.98 mph,





stalactitically slow, the slowest at 500cc level since 1924. Rain fell in torrents throughout, and only a hairtrigger balance between dash and discretion ensured mere survival. Like most of his peers, Dodson crashed heavily, splitting his helmet open and losing minutes while he freed his locked front wheel from its mangled mudguard.

The 1929 Senior, the last TT in which a Sunbeam filled a money place, and which moved race speeds up into the 70s for the first time, was a different story. For the pintsize Charlie—114 lb. and 5-3—the man to beat was Alec Bennett, also on a works 'Beam. The pair in fact finished 1-2. Dodson attributed his success to two factors: first, his build; second, George Dance, ex-rider in charge of race machine development and prepping. Dance unobtrusively upped the little fellow's overall drive ratio by the nuance it needed to take optimum advantage of his low wind resistance and light weight.

TT HAT-TRICK FORDOOMED

Charlie's chances for a Senior TT hat-trick were foredoomed though. In 1930 the Marston company became a satellite of an English industrial heavyweight, Nobel Industries, later to burgeon into the even heavier-weight Imperial Chemical Industries. Although John Marston retained most of its autonomy in engineering matters, the hour wasn't propitious for new racing designs. Charlie told his directors that all he needed for his third Senior trophy in a row was a four-speed gearbox, a feature already common in rival camps. It wasn't forth-

On his way to winning the first post-WWI Senior TT, T.C. de la Hay aviates his 1920 Sunbeam over the hump, long since erased, of Ballig Bridge.

Now almost a sexagenarian, this 1913 350 side valver was minted in 1913 and is the pride and joy of Vintage MCC member Laurence Williamson. Crude stirrup-type front brake contrasts with oil-immersed drive chains.



coming, and the works Ridges, with their four gears and superior handling, butchered the Sunbeams.

This prolonged retention of an outdated transmission was indicative of the fact that there never was any really significant difference between the firm's standard and works team bikes. They were always closely alike in specification and identical in the quality of their materials, workmanship and finish. While this inevitably priced the product out of vulgar reach, it did attract an elite of fastidious and well-heeled privateers. It was no surprise when the inaugural Amateur TT in 1923 was won by a Sunbeam rider, Les Randles, and the make filled three out of the top six places. The '24 Amateur TT exactly repeated the pattern: Randles first; three Sunbeams in the leading six.

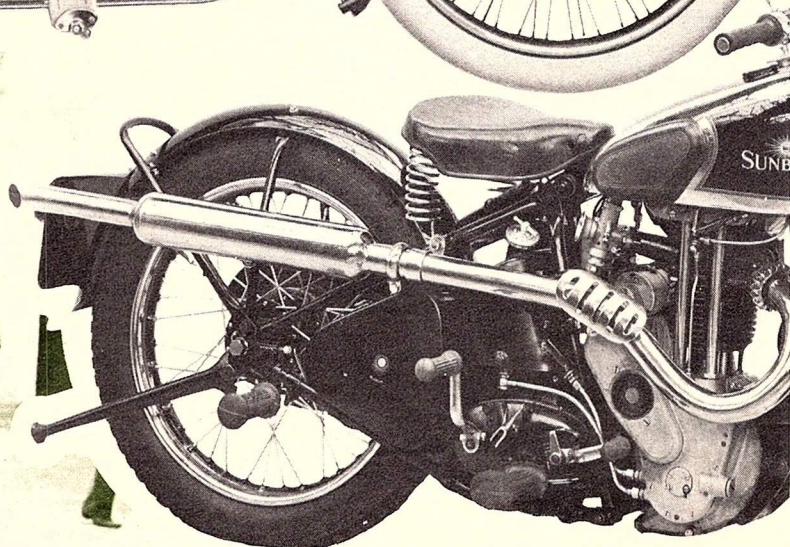
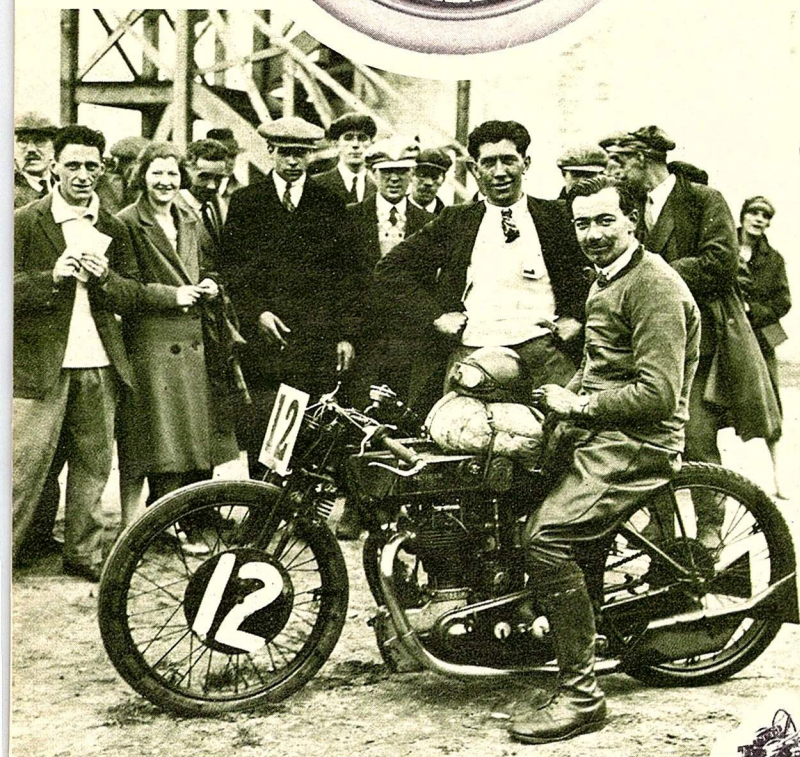
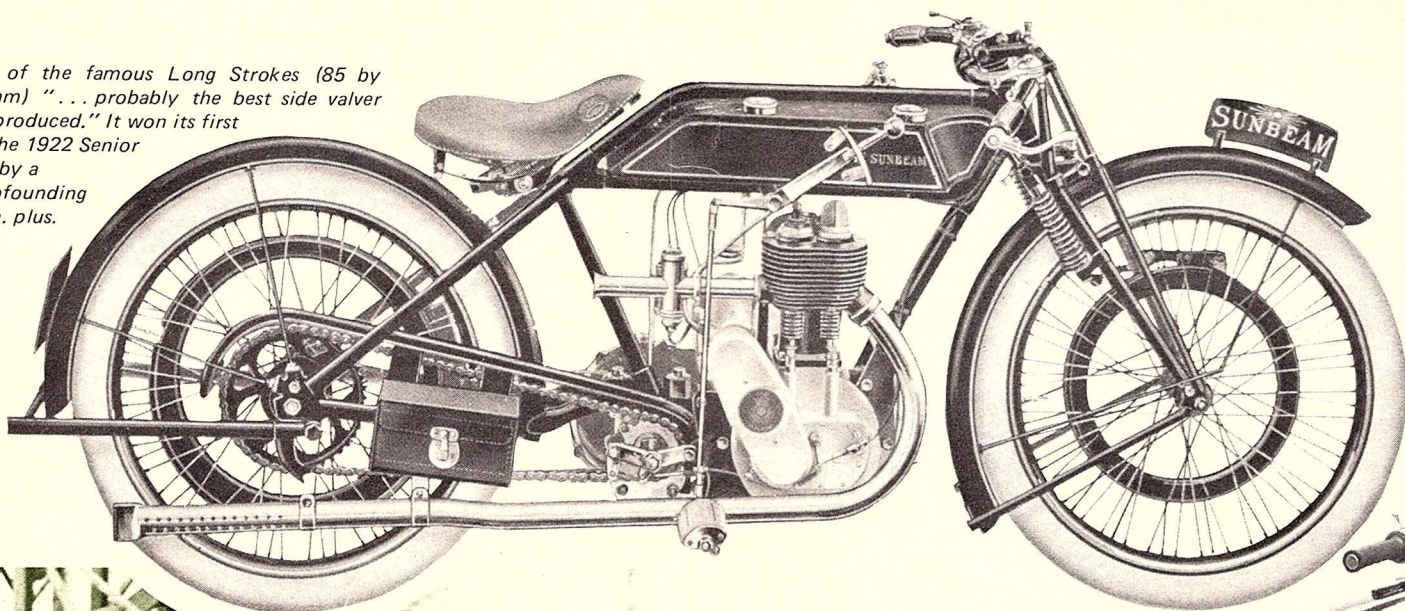
The Marston company had been formed when George III was on the English throne and its first motorcycle didn't hit the road until Edward VII's time. In the intervening 112 years the firm didn't confine itself to the manufacture of pots and pans. In the infancy of the worldwide pedalbike craze, for instance, during the last quarter of the nineteenth century, it had turned out, steadily if not overly fast, machines of unexampled quality and durability. These were invariably black and devoid of decoration, save for a tasteful pin-stripe that not only looked like gold but actually was appliqued gold leaf. The same expensive stuff later adorned the tanks of the Marston-built motorcycles. Another, more important hand-down from the rider-powered to the internal combusive Sunbeam bikes was the method of protecting the driving chains from water and road grit. The pedalbikes, both before and after the motorcycles' debut in 1912, were famous for their totally enclosed chains, which enjoyed the obdurately leakproof Little Oil Bath, as it was called.

The first gasoline Sunbeam, an up-to-date but not radical 350-cc, side-valve Single, boasted a two-speed countershaft gearbox and all-chain transmission at a time when most of Marston's contemporaries were content with either direct belt drive (sometimes with two-speed hub gear) or, at best, countershaft transmission and a chain/belt combo. On this Edwardian 350, not only the primary but the final chain too was shut in decent purdah and enjoyed perpetual immersion in clean oil. All the subsequent Marston tourer models had both their chains similarly protected and lubed, as did the primary drives of most of the road and track racers.

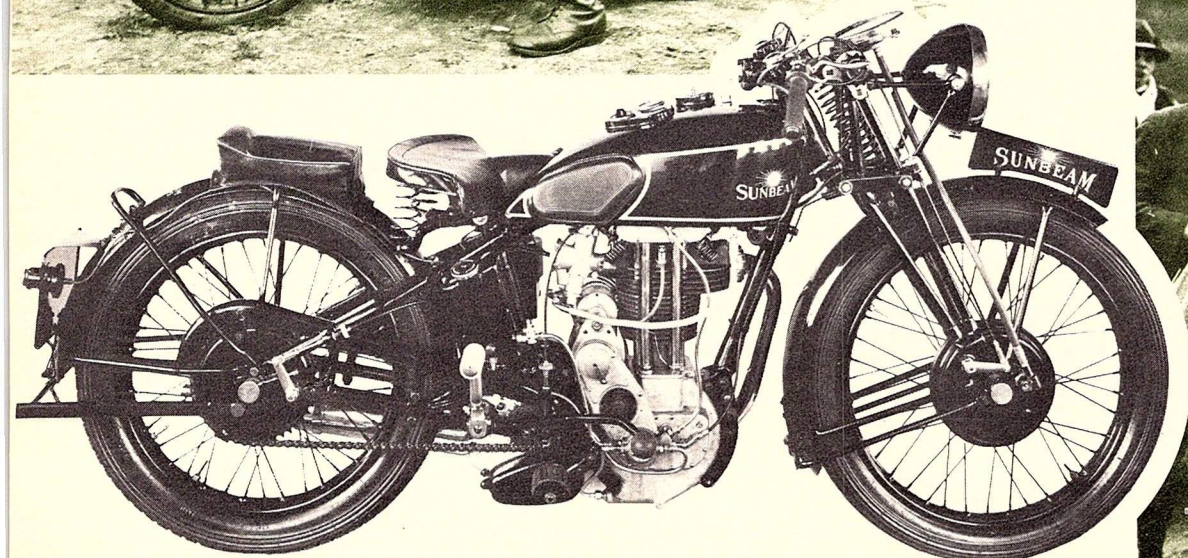
CARS PRECEDE BIKES

At Sunbeam, the first motorcycles had been preceded by the first cars, thus reversing the sequence followed by such other British makes as AJS, BSA, Clyno and Douglas. Oddest of the 'Beam auto->

First of the famous Long Strokes (85 by 105mm) "... probably the best side valver ever produced." It won its first TT, the 1922 Senior race, by a dumbfounding 7 min. plus.



Unsuccessful in its works team role, the ohc Sunbeam, introduced in 1925, later won the 500cc class of the Brooklands 200-Miles Race in the hands of this private owner, R. Gibson.



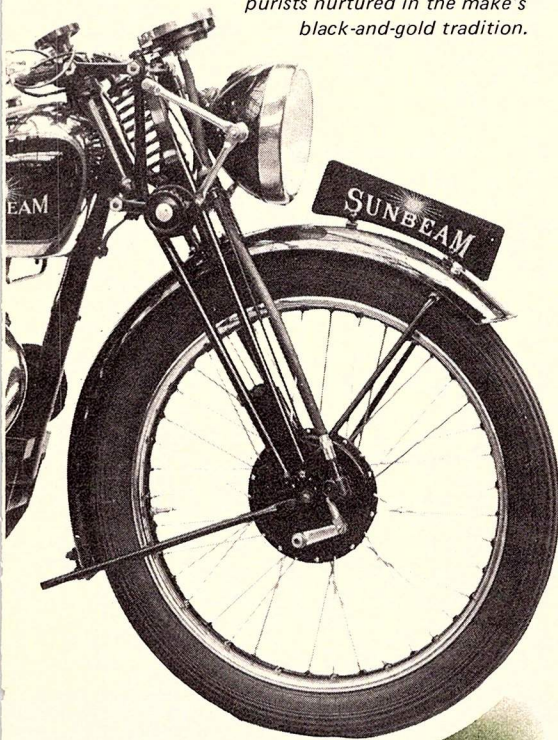
Fastest street-equipped Sunbeam ever, the 1935 493-cc Model 95L, with single port head, dry sump lubrication, hairpin valve springs. Racing (R) edition was supplied without lamps, speedometer, kickstart or primary chain oil bath.



George Dance, king of English sprinters in the 20s, in characteristic spreadeagled attitude as he awaits starting signal behind ultra-wide bars of his Sunbeam 500 hillclimb bike.

HISTORY OF SUNBEAM

With its chrome-plated tank, paneled in blue, this 1935 350 Sports Lightweight shocked purists nurtured in the make's black-and-gold tradition.



mobiles was the Sunbeam-Mabley, "whose inspiration," according to a leading British engineering historian, the late Jim Sheldon, "was probably the long forgotten Victorian S-sofa." This creepabout, dating from 1901, afforded entry/exit for driver and passenger on opposite sides of the body and incorporated a curvacious central division, S-sofa fashion, between the active and passive motorists. Viewed in plan, the Sunbeam-Mabley was diamond shaped rather than rectangular, with two of its wheels amidships, at about the plane of the occupants' elbows, and the other two front and back but on the longitudinal centerline.

The firm's elevation to the ranks of legitimate car makers more or less coincided with its enlistment of the famous French designer of ground vehicles and aircraft, Louis Coatalen. He created all time's biggest and most powerful British bidder for the Land Speed Record, the 48-liter, 4000-horsepower Sunbeam Silver Bullet, which—out of character for Coatalen—proved a total and costly flop, as it attained speeds not greatly in excess of yesteryear's Sunbeam kitchenware.

J.E. Greenwood, formerly chief designer at the JAP motorcycle engine factory in London, drafted the 350-cc forefather of the John Marston bike range, and in 1913 came up with two new 'Beams. Both were sidevalvers, a 500 Single with a shortish stroke (88 millimeters) and effectively an overgrown edition of the 350, and a V-Twin of around 750cc for sidecar hauling, powered by one of his JAPs. Both models carried on the Little Oil Bath tradition, had a three-, instead of two-speed transmission, and, with their quickly detachable rear wheels, went far towards licking one of the worst and most frequent roadside chores of the day—repairing tire blowouts and punctures.

Greenwood's 1913 500, which was standard apart from a slightly lowered engine mounting, a separate engine oil supply in a tank hung from the saddle tube, and foot and hand brakes both operating on the back wheel, carried Howard Davies to his 1914 Senior TT deadheat in the marque's first road race.

Sunbeams of various calibers, including a JAP-powered V-Twin of 1000cc displacement, served the armies of several Allied nations during WWI. Alternatives to the original JAP powerplant in the V-Twin were, at various dates, the Swiss M.A.G. and the Abingdon King Dick, which was British.

The one that had started it all, the 350, dropped from sight in 1915, leaving two variations of the side valve 500 to carry on the one-lunger line after the war. These bikes were backed up by the two-lung sidecar hauler. A Light Solo derivative, disguised for its Isle of

Man role by lowered bars and rear-set pegs, was also offered, and one of these freighted Tommy de la Hay to his 1920 Senior TT victory. What's more, he won by the startling margin of 3 min. 52 sec.

The fashion among bhp seekers at that time was to stretch strokes at the expense of bores, contrary to today's practice. Oddly enough, where other factors were equal, the recipe often seemed to work. A classic case in point was the history-making Long Stroke Sunbeam described by historian Sheldon as "... the best side valver ever produced." In general design its 499-cc engine closely resembled the shortie it superseded, but its stroke was lengthened from 88 to 105mm. Launched in 1921, it immediately established itself as the fastest 500 on the British or any other market.

THE "LONG STROKE" A FAST 500

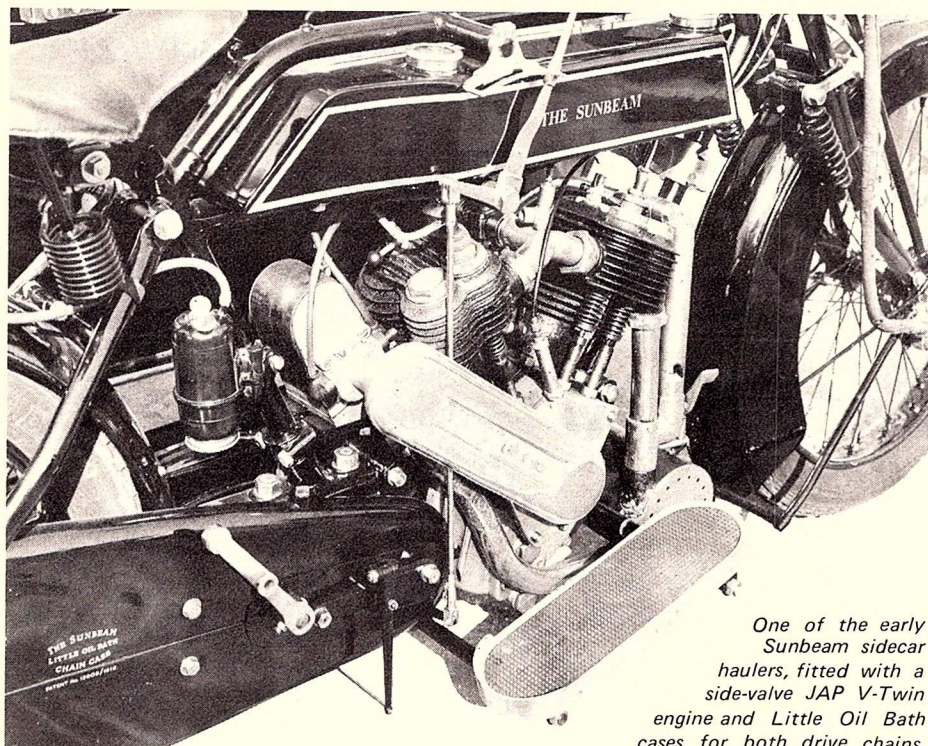
Concerned only in making its machine as functional as an ax, the Marston drawing office stuck to science and disdained art. Thus, the Long Stroke's tank toptube sloped slightly downward towards the low steering head, conspicuously out of parallel with the exhaust pipe, which had an opposite incline. Also eye-catching, though in an attractive sense, was the induction plumbing. The straight and truly horizontal inlet pipe was matched by an attenuated air intake. The combined lengths of the two tracts was not far short of one foot.

The Long Stroke's brakes were of the dummy belt rim type, and like all other Sunbeams since 1912, the bike had its magneto located behind the cylinder. Setting a new fashion, the rectangular toolbox was attached to one of the lower rear frame members.

The special Long Strokes raced in the TT of 1922 had non-standard pistons (aluminum alloy replacing iron), a mechanical oil pump with pedal-operated auxiliary pump for high stress conditions, a close ratio gearbox (still three speeds), and a tankside shift lever set at the characteristically Sunbeam angle. This machine won the second of Sunbeam's four Senior TT conquests, and for winner Alec Bennett, breaker of both the local race and lap records, it was a personal triumph.

Although he was a relative newcomer to road racing, Bennett had an unseen ace up his sleeve. Back home on the half mile tracks of British Columbia, he'd acquired a seventh sense in pointing his bike into impenetrable clouds of dust and keeping everything wound on. He put this experience to good use in the TT, as the Manx roads were untarred and almost as dusty as the Canadian ovals he'd ridden in his teens.

His stretch on the Sunbeam factory team coincided with its total half-liter international supremacy, and he confirmed his *Campionissimo* rating by >



One of the early Sunbeam sidecar haulers, fitted with a side-valve JAP V-Twin engine and Little Oil Bath cases for both drive chains.

cleaning up the French Grands Prix of 1921 and '22.

The death of John Marston himself in 1918, and of his son Roland the following year, had little effect on the company's staunchly conservative policies, for the new chief, Sidney Bowers, was equally if not more conservative. Sometimes, too, there was an illogical element in the board's decisions. Scaling up Greenwood's original 350 to make a 500, and then scuttling it just when it was ripe for further development, is an example of this.

The firm's conversion to overhead valves was a three-phase process. George Dance, the uncrowned king of Britain's hillclimb and flat sprint courses, set the ball rolling in or around 1922 with an engine combining the side-valve 350's bottom end with an experimental head containing vertical overhead valves. In 1923, all-new pushrodders with inclined ohv and hemi heads were readied for the works team, but only the smaller of the two, a 350, was fielded in the TT. The larger 493-cc edition sat the Senior out in favor of the already proven Long Stroke.

Phase Three in 1924 saw ohvs in both 350- and 500-cc sizes. Those were known as Models 8 and 9 respectively. Mechanically identical, but much easier on the eye, were the alternative Sprint 'Beams known as Models 10 and 11. These featured small-capacity, wedge-shaped tanks and rearward sloping upper frame tubes that answered the aesthetic objections to the traditional Sunbeam bone structure.

Early versions had inclined pushrods and triple concentric valve springs, but these were later superseded by parallel rods and the hairpin springs (unobstruc-

SUNBEAM

tive of airflow to the valves) that became part of the Sunbeam engineering legend. Single and twin port heads were available at option and, in either case, the finning around the exhaust port was conspicuously deep. For racing, the double spout was favored, and in this form the Model 8 became the 80 and the 9 the 90.

SUCCESS FOR THE "ROCKERBOX"

The extent of these rockerbox Sunbeams' success in every kind of speed event was practically limitless. At opposite ends of the spectrum, George Dance broke the 500cc world standing start record in 1923, and the following year became the first rider ever to beat an 80-mph average for one hour on a 350. In 1925 and '26, French independents won the 24-hour Bol d'Or on Model 90s. On the first of these occasions, Francisquet covered 1004 miles "in spite of a serious accident," and without benefit of a relief rider. One could add that the circuit, with its atrocious surface and cambers, was a serious accident in itself.

In 1925 John Marston put some of his eggs in an overhead camshaft-type basket and then let them drop out through a hole in the bottom. Thereby hangs a tale of unaccountably unfinished business. The ohc engines, built in 500- and 600-cc sizes for the Senior and Sidecar TTs, but with a common bore measurement, had vertical shaft drive to its single camshaft. It also featured hairpin valve springs, dual exhaust ports and dry sump lubrication. Otherwise, it

was much like the current pushrodders. Being new and relatively undeveloped, though, it wasn't 100 percent reliable. Graham Walker, the works team's chief hope, was disputing 3rd place in the Senior TT when a wrist pin end pad pulped and he had to quit. Graham's chances looked good too in the sidecar event, until his mag control wire snapped.

Discouraged on such slight grounds as these, Sunbeam abandoned its ohc endeavors, just at a time when its important rivals in the industry were espousing the principle, or would shortly do so.

John Marston, fortunately, didn't hasten to scrap his tiny treasure of ohc engines. At least one found its way into private ownership and, in 1927, R. Gibson rode it to victory in the 500cc class of a major Brooklands classic.

In 1923 the big Twin sidecar bike, which never enjoyed the same supremacy in its class as the 350 and 500 Singles had in theirs, was replaced by an up-stroked, side-valve Single, the so-called "4¼." A plonker *par excellence*, it responded quite rewardingly to the renowned tunecraft of George Dance. With the aid of a pair of improvised reins, he was able to walk unhurriedly alongside it and its occupied sidehack. This demonstration of flexibility was later independently emulated by one of *Motor Cycling's* road testers. In 1925 the same magazine timed a single-port ohv 'Beam 500 at 84 mph and was enthused over its "exceptionally effective brakes and unique adjustable clutch stop." The purpose of this clutch stop was to prevent the cork-faced plates from dragging after the machine had been left standing, and also to facilitate pauseless shifts. Cork as a clutch material, obviously more vulnerable to heat than alternative compounds, was retained by conservative Sunbeam long after the competition had made a switch.

NEW FRAME: BRUTAL HANDLING

Regarding frame design: Sunbeam was neither more nor less receptive to new ideas than most of its British contemporaries. For the first 26 years the clientele, whether it liked it or not, was stuck with what it affectionately called the 'bedstead frame. After all, what harm had a bedstead ever done anybody? But in the winter of 1928, following the current trend, Sunbeam ditched Old Faithful, with its long-reach riding position, forward downsloping toptube and short steering head, and took a great leap forward. The new frame with its big-diameter, tank-enshrouded single toptube, shortened wheelbase, and much lengthened head, offered a more comfortable riding position, but didn't do much for handling and road holding. The fact is, the

(Continued on page 144)

NEW MODELS & PRODUCTS

ALLIS-CHALMERS OUTRIDERS



For 1972, Allis-Chalmers has prepared three Outrider recreation bikes—a 4- and a 5-bhp minibike and a 5-bhp trail bike.

The 1-in., 14-gauge tube frame and fork assembly is sturdily constructed, with heavy-duty gusseting at all major stress points. The trail bike also features heavy-duty front suspension, and the 5-bhp mini is equipped with shock absorbers and swinging arm suspension.

Power is supplied by four-cycle Tucumseh engines. A top speed of 30-35 mph is estimated for the 5-bhp machines, which have automatic variable speed torque converters. The 4-bhp mini, with an estimated top speed of 20-25 mph, has a centrifugal clutch. All units are equipped with 4 1/2-in. diameter brakes.

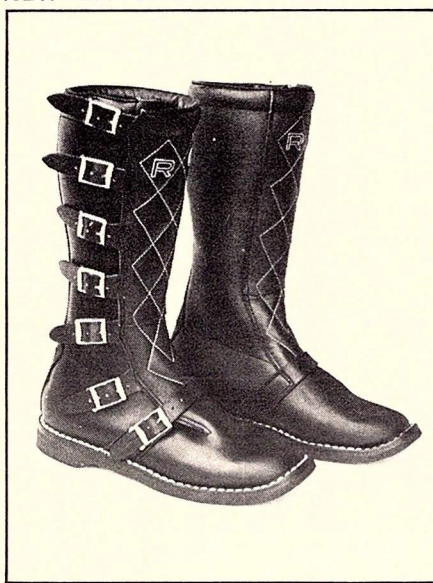
Power is transmitted through a jack shaft to the rear sprocket and chain. Excessive preload to bearings is reduced by a spacer between the wheel bearings.

Road clearance on the 4-bhp mini is 5 in., on the 5-bhp, 6 in., and on the trail bike, 7 in. Wheelbase on the 4-bhp mini is 39 in.; the others have a 42-in. expanse between wheels.

Other features include a 12-volt sealed beam front light on the 5-bhp mini, and foam-filled seats on all units.

For further information, write Allis-Chalmers Outdoor and Leisure Products, Dept. CW-4, Box 512, Milwaukee, WI 53201.

NEW "LANGHORNE" BOOTS



Three new boot styles have been included in Accessory Distributors Inc.'s line of "Langhorne" clothing for cyclists. They are:

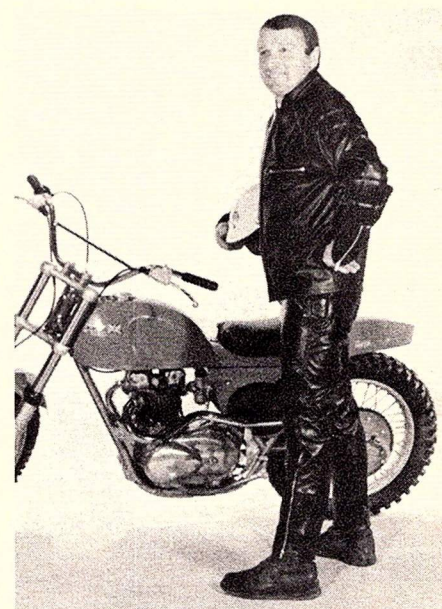
The Woodsman, a 17-in.-high boot featuring full length lace-up closure for firm ankle/calf support and protection. Construction of the upper part is done in supple leather with heavy duty reinforced leather at all wear points. A special material is used for the one-piece

slipper-type sole/heel to provide long wear and good sliding characteristics, yet also a firm grip on footpegs. Available sizes are 7-13, "E" width, and price is \$28.95 a pair.

The Motocross and Enduro models are both 16-in.-high boots featuring a seven-buckle closure with padded shins and tops. A slipper sole/heel with up-turned toe was designed for the Motocross to afford high speed sliding with a minimum of snagging. The Enduro model has the same upper construction, but with a cleated sole for maximum traction when footing. Both boot models are available in sizes 7-12, "D" width, at \$49.95 each.

All Langhorne clothing and equipment are available through motorcycle dealers across the country. For further information or inquiries, write ADI, Dept. CW-4, 175 Fair St., Palisades Park, NJ 07650.

GLOVE VINYL RIDER WEAR



Endura of Calif. is offering protective racing wear composed of a new material called "glove" vinyl. The construction features a 32-oz. expanded-back vinyl plastic which is less stiff and softer than normal vinyls and Naugahydes. It is more scuff- and weather-resistant than regular vinyl, and due to greater elasticity, is less likely to rip out.

Available colors are maroon, orange, mustard, olive, lime, lemon, red, blue, charcoal brown, white, black and gold, and may be chosen for any of 31 garments and 250 miscellaneous items.

Retail prices of garments and complete outfits in glove vinyl run from \$9.95 to \$79.95, depending upon the style.

For complete information, enclose 25 cents for handling and write to Endura of Calif., Dept. CW-4, 312 S. Palm Ave., Alhambra, CA 91803.

(Continued on page 106)

road and started to bump over a graded dirt road that connects the Monitor Valley with Manhattan.

I had heard about Belmont, the former county seat, abandoned in the 19th Century for more prosperous Tonopah, with its expensive brick courthouse, and I was curious to see it. I didn't have long to wait. The trip between towns was short. I first spotted Belmont by the over 50-ft. tall chimney that marks the former site of the Monitor Mill, just south of town.

It seemed impossible such a tall, well-made chimney could have survived the ravages of time, or even have been needed in the first place, but here it was. Since I couldn't ride to it on the bike, I dismounted and walked over. The brick work was so astonishing, and perfect on the chimney that I found it hard to believe.

The rest of the structure, also made from brick at some prosperous time in the past, was also in evidence, but in ruins. Around the bend lay Belmont. The brick courthouse was more imposing than I previously thought, but vandals had broken all the windows, torn out lumber inside in a frantic search for square nails, and generally rendered the once proud structure a shambles.

A well-made stone house that was the local mining company office is the current home of Rose Kennedy, a lifetime resident of Belmont. I stopped to talk with her, but she was out of town on an errand, and I missed the opportunity to hear some of her stories about early Belmont.

A local resident made it clear I wouldn't be welcome if I was planning to stay in town, but suggested a spring used by cattlemen outside of town. Taking his advice, I rode up the road and found the spring. A water trough with clear (well almost clear) sparkling water that bubbled out of a spring greeted me, and I found a comfortable spot under a Juniper tree to camp.

It was unfortunate, but someone had already visited the spring and dumped what appeared to be a trailer load of household garbage in the brush. I spent about two hours gathering it all up and burning it with the aid of some gas from the Yamaha tank—so the next visitor would have a clean camp to enjoy.

Back in Belmont, I talked with a man who had lived in the community most of his life, Frank Brotherton. Brotherton's relations once operated the only undertaking parlor in Belmont, in what had also been the town jail.

Located in the basement of a collapsed store, whose roof was leaking from a recent rain, the jail has heavy

steel doors, and slimy, damp walls. Once locked inside, a felon had no chance of escape. As we poked around in the room, Brotherton showed me a set of burial clothes, and silver coffin handles left over from more prosperous times. It was a chilling experience—especially when Brotherton told me two men had been hanged, then shot in the room we were standing in!

Other buildings seemed on the verge of collapse from old age. For all the decay, however, Belmont had a certain charm that is hard to describe. I hope to go back again for a longer stay sometime in the future. Kicking over my bike, I started up the road. A kindly soul waved me down.

"Did you know the spring you stayed at was infested with rattlesnakes?" the man asked with a slight grin.

"No," I admitted, "but they didn't bother me." The man looked disappointed with my admission, especially since I was obviously safe and sound. "That's the breaks," I smiled over my shoulder.

I exited from the Monitor Valley at a point about midway between Austin and Eureka. Consulting my maps, I decided to take the road toward Austin, one of the oldest towns in the state. By coincidence or chance, it is located near the geographical center of Nevada.

A steep grade winds into the sleepy community tacked like building blocks on the steep hillsides of a canyon. One of the local features are ladders leading to second-story apartments in many of the oldest stores. These could be pulled up at night to keep thieves and intruders at a safe distance.

People in Austin were friendly—some of the most outgoing I met on the trip. The general store, full of rich smells from many types of merchandise, reminded me of America several decades ago. A free tour map prepared by the Chamber of Commerce guides visitors to the many points of interest, and I set out to explore them all.

If there was a favorite, Stokes Castle was probably it. A tall, narrow structure, the "castle" really doesn't look like a castle, but it was still impressive. Several stories high, fire had gutted the interior and burned the roof off, leaving only a stone shell, but I couldn't help wondering about the eccentric man who built it.

Following Highway 50 west from Austin, I was heading for Reno and home via Carson City. Even though the trip had been fun, the constant jolting and straining of keeping a trail bike on course in the backcountry was starting to show.

Counting all my wanderings, sometimes in circles, to see attractions along the route, the speedometer registered more than 2600 miles. The engine still

purred to life every morning, and except for one flat tire and a few stray nuts and bolts that fell off, the bike felt new, and looked it.

I passed through Carson City late at night, following Highway 395 toward Los Angeles, down the backbone of the eastern Sierras. The nights at this altitude were cold, and I usually pulled into one of the state-operated campsites an hour before dark to avoid the chill air generated by riding.

My last night on the road, I unrolled my bag near the community of Lone Pine and settled down around the campfire. Above, a canopy of stars winked at me, and to the west, Mt. Whitney gleamed in the failing light, a brilliant diamond of snow against the dark sky.

Brushed by a light breeze, I wondered why I was going back to Los Angeles and smog—after nearly two hours of contemplation, no answer came, but I knew I would go back anyway. People are funny, no doubt about it. 

PREPARING TO RIDE: A CHECKLIST

Based on this trip and several other excursions on a trail bike, I have compiled an impromptu list of things that frequently make a backcountry journey more helpful and comfortable.

1. The basic tool kit that comes with a bike is handy, but will rarely cover all situations. I replaced the somewhat crude set of pliers in my kit with a Channel Lock pair of pliers.

Also, the socket wrenches provided are not sufficient for anything but minor repairs—so I added a ratchet set and sockets, plus a short extension. A good screwdriver is also essential, and a small hammer is very handy.

2. Flat-Fix, a brand name aerosol can of compressed air mixed with a sealer, will often repair a tire and tube with a small puncture—plus pump up the tire. They cost about \$1 each and are worth it.

3. A ground cloth with a rubber or plastic backing is great for sleeping on the ground because it keeps out dampness and can double as a mini tent in case of a shower or light rain.

4. Space blanket, a brand name and a development of the NASA space program, is a super lightweight blanket made from plastic and other synthetic materials, which weight-wise is about half that of a wool blanket, yet is nearly as warm. They cost about \$8.

5. Dehydrated foods are the ideal way to eat on the trail, but mix them—in case you make a dry camp. Otherwise, items that need water before eating can be a problem.

6. Epoxy glue, a wire saw, and other trinkets are handy, but not necessary. I have used all of them from time-to-time, however, and wouldn't be without them on a long cross-country ride.

WATER AND YOU

Continued from page 81

ognize it when it does occur. Table 1, based on *Physiology of Man in the Desert* by E.F. Adolph and Associates, gives a list of symptoms roughly in order of increasing hypohydration. Some of these, like increased rectal temperature and decreased blood volume, require special instruments to measure, but most of the symptoms can be observed simply by looking and questioning. According to the table, a person is in rather serious trouble by the time fingernails and lips begin to take on a bluish coloration. What is not so obvious is the role of thirst, which is listed as the very first symptom of hypohydration. Seemingly, thirst would increase in some approximate proportion to the degree of hypohydration. But due to a quirk of the human water metabolism, this is not true.

It appears amazing that a racer or enduro rider who lavishes any effort or expense on improving the capabilities of his machine, who jogs a mile a day to keep his body in shape, who invokes all the competitive tricks and advantages he can find, would willingly throw away a good fraction of his strength, stamina and speed by allowing himself to become hypohydrated. But this is exactly what happens and it's not at all unique to motorcyclists.

Out of all the experiments with, and medical observations of, hypohydration that have been made over the last century, one finding emerges clearly: Nobody does and nobody can drink water fast enough to replace sweat as he loses it during hard work in hot, dry climates. This phenomenon has been named *involuntary hypohydration* by physiologist John E. Greenleaf. It is caused by what might be considered a breakdown, or overload, in the thirst mechanism. Think of it this way. You can easily hypohydrate 5% during a few hours of vigorous riding. If you normally weigh 160 lb., that means you've lost more than a gallon of water. Have you ever tried to drink a gallon of liquid at one time? If you try to force it down, chances are you'll vomit it all right back up. This is a normal reaction and, if more water is available, you can drink a more moderate amount again and it will stay down. When your water deficit exceeds a couple of quarts you will not feel like drinking—will not be able to drink in one sitting—enough water to replenish the entire loss. This is involuntary hypohydration.

The thirst mechanism is not well understood even today. Various hypotheses have been advanced to determine

perceived thirst from one or another single cause. Attempts have been made to explain thirst in terms of the proportion of water in the blood or in the intercellular fluids or within the body cells; in terms of the concentration of salts in these fluids; in terms of the volume of water swallowed at one time or the volume of water in the stomach; in terms of the activity of the hypothalamus, the air temperature, or the levels of physical fitness and physical exertion. Unfortunately, perceived thirst seems to depend on *all* these factors, so no simple explanation is possible.

Perhaps the most worrisome finding of such studies is that as the temperature goes up the amount of water one feels like drinking goes down. This means high temperatures are a triple threat—they increase the rate of water loss, they diminish tolerance for hypohydration, and they interfere with the thirst signals that tell one to replace the lost water. This can be a vicious circle. On a hot day a person may, without realizing what he's doing, permit his water deficit to continue at a high level, or even to increase, because he just doesn't feel like drinking.

For reasons no one clearly understands, man seems to be unique among the species in his susceptibility to involuntary hypohydration (all species are vulnerable to hypohydration, of course). A hypohydrated dog, for example, will not only recover his entire fluid deficit with a single drink up to 5-min. long, he will actually overshoot his normal water balance by 15% or more. There is a certain logic to this. If he's just suffered a major water loss, it's likely that the same thing may happen again. If so, he'll be better prepared for it if he starts off with a surplus of water in his body. Other animals like laboratory rats, rabbits, mourning doves, cats, oxen and, naturally, camels can and do replenish their water deficits with a single, lengthy drink. Man cannot do this. Severely hypohydrated men offered unlimited amounts of water will usually drink no more than a single pint at one time.

Ordinary water intake is at a rate sufficient to replace the entire supply of body moisture over a period of 1½-2 weeks. If a motorcyclist spends Sunday riding the boondocks, he will surely hypohydrate to some degree. For the next 3-5 days he will have to drink more than usual in order to overcome this deficit. Whereas some animals can replace their water losses in a matter of hours, or even minutes, it takes man 3-5 days to regain his water balance after an episode of hypohydration. Following a Sunday of vigorous dirt riding it will take most of the rest of the week to catch up on water supply.

Folklore has it that a person can acclimate to high temperatures and ad-

just to hypohydration. In general, this just isn't so. Here's what actually happens. During the first day of strenuous activity in the heat of the day, he loses water as he sweats, more or less proportionally to his activity and to the temperature above 92-degrees F. If he drinks an amount guided by his thirst, he will not drink enough to replace the water losses as they occur. This leaves him hypohydrated. In the evening, the temperatures will be lower and he, presumably, will be less active, so the rate of fluid loss will be lower and his drinking will tend to make up part of his water deficit.

If he repeats this cycle day after day his water intake will tend to adjust to accomplish three things. First, he will slowly overcome his initial deficit. Second, his average daily intake will rise to equal his average daily losses. And third, his hour-by-hour drinking pattern will tend to shift towards his hour-by-hour losses, i.e., he will tend to drink more during the hottest part of the day and during the periods of greatest activity and sweating. Even so, there will remain some degree of periodic hypohydration during and following peak daily activity and temperature. (Continued on page 100)

TABLE I

SYMPTOMS OF INCREASING
HYPOHYDRATION (ORDER AND
PERCENTAGES ARE APPROXIMATE)

At deficits of body water as percent of total normal body weight	1%	Thirst Vague discomfort Economy of movement Anorexia (no appetite) Flushed skin Impatience Sleepiness Increased pulse rate
	5%	Increased rectal temperature Nausea
	6%	Dizziness Headache Dyspnea (labored breathing) Tingling in limbs Decreased blood volume Increased blood concentration Absence of salivation Cyanosis (blue lips, nails, body)
	10%	Indistinct speech Inability to walk
	11%	Delirium Spasticity Swollen tongue Inability to swallow Deafness Dim vision Shriveled skin Painful micturition
	20%	Numb skin Anuria (defective micturition or none)
	25% or less	Coma Death

WATER AND YOU

Continued from page 99

This whole process of adjustment takes 10 days-2 weeks, and it is the only sense in which he acclimates to strenuous activity in high temperatures. All that really happens is his water intake comes into closer balance with his water losses. Acclimatization does not mean that he loses less water or that he needs to drink less water or that he can develop greater physiological tolerance for water deficits. On the contrary, it means that he learns to increase and regulate his water intake throughout the day, minimizing the extent of hypohydration at any point in time.

A weekend rider will not enjoy this physiological adjustment that takes place over a couple of weeks of regular daily activity. As far as water metabolism is concerned, each Sunday is a "first day" of hypohydration. He can, however, make certain psychological adjustments. Having experienced some degree of hypohydration on several previous occasions, he will know what to expect and can be mentally prepared for it.

Don't underrate mental preparedness; it is an important factor in many other aspects of motorcycling. A novice rider is likely to panic the first time he accidentally slides the rear wheel. Even some pretty good riders freeze up if they inadvertently lock the front wheel and cause it to slice while descending a hill. Both will probably be spit off. A

more experienced cyclist on the other hand can often ride out the same situations, simply because he knows what to expect and stays calm. Early one spring I rounded a turn on Saddleback Mountain and saw a patch of snow on the trail—it must have been all of 20-ft. long and 6-in. deep. I was so terrified I didn't even know what it was until I tasted it in my mouth. Yes, Virginia, I was lying face down in the snow. No, Virginia, I didn't plan it that way. A motorcyclist who'd ridden in snow before would have sailed through this snowpatch effortlessly, and probably thought it fun. It's all a matter of psychological preparedness.

Besides ensuring a calm and sensible approach to such symptoms of hypohydration as one may experience, psychological preparation forewarns a person that he will actually need more water than he feels like drinking. Experiments with lumberjacks, soldiers, cane cutters, construction workers, and the like usually find that, at first, these men think they need less water than they really do, and that they try to prove how rugged they are by denying their thirst even to the extent it is perceived. Strangely, the same subjects who pride themselves on how *little* water they need often pride themselves on the sizes of their appetites, that is, on how *much* food they need. If one is mentally prepared, he will realize that, due to involuntary hypohydration, he needs even more water than his thirst would indicate, so he will drink freely and often, just as much as he comfortably can.

There is some evidence that people who are born and raised and live all their lives in the Sahara, Arabian, Gobi

or North American deserts do adjust to hypohydration. This is not to say they need less water or can go longer without drinking, only that a given percentage of hypohydration does not seem to upset their body chemistry quite so much. More importantly, such desert people invariably adopt life styles that minimize their water losses by rationing their sweat. They rest quietly and stay in the shade during the hottest part of the day. This isn't the way the movies show it, but in hot weather Arab desert caravans travel before 10 in the morning and after 5 in the evening. If the moon is bright, they travel at night and spend the day asleep or at rest. Thus, a good part of the legendary adaptation to hot climates is behavioral, not physiological.

Motorcyclists too, can make such behavioral adaptations, at least to a limited extent. If they're going out for a full weekend of cowtrailing, they can do most of their riding in the morning and afternoon, spending the hot midday lounging around camp, eating a leisurely lunch, taking plenty of water with the food, and trying to impress their buddies with bench-racing stories and tall tales of derring-do on the trails. During the hottest months of the year, an increasing number of desert races are scheduled to start just after dawn, avoiding the peak daily temperatures. This is a good idea, but it's not entirely under a rider's control. Things are tougher if the race starts late in mid-morning, or if it's hundreds of miles long, or if it's an enduro that takes six, eight or even ten hours to complete. In these cases he'll be riding during the hottest part of the day, and should be prepared for higher levels of hypohydration.

In hot, dry climates a minimum of about one gallon of water per day is needed, even if a person does little but sit still in the shade. The more active one is, the more water he needs. Riding hard throughout the hot part of the day increases his requirement to two or even three gallons per day. That's right, *gallons*. He will be hard pressed to drink that amount of liquid. Indeed, he should drink more, and more often, than his thirst seems to require if he wants to keep up with his rate of water loss. Studies conducted in 1945 in various hot, humid climates (hot and dry climates being even worse) found that *none* of the subjects drank enough to keep up with his sweat losses completely, and that thirst did not seem pressing until considerable hypohydration had already occurred.

Table 2, also based on Adolph's book, is a guide to the length of time one can expect to survive at various temperatures and low humidity. Notice how little advantage a quart canteen of water really provides. For extended exposure, one has to think in terms of gallons per day, not quarts. On a gallon

TABLE 2

DAYS OF EXPECTED SURVIVAL IN DESERT

Resting in Shade

Max. Daily Shade Temp. Deg. F	Quarts of Water Available				
	0	1	2	4	10
	Days of Expected Survival				
120-deg.	2	2	2	2½	3
100-deg.	5	5½	6	7	9½
80-deg.	9	10	11	13	19
60-deg.	10	11	12	14	21

Walking at Night, Resting in Shade During Day

Max. Daily Shade Temp. Deg. F	Quarts of Water Available				
	0	1	2	4	10
	Days of Expected Survival				
120-deg.	1	2	2	2½	3
100-deg.	3	3½	3½	4½	5½
80-deg.	7	7½	8	9½	11½
60-deg.	8	8½	9	11	14

of water per day one can walk about 20 miles per night, resting in the shade while the sun is up. That's a fuel consumption of 20 mpg, comparable to a 750cc two-stroke.

Does this mean carrying a quart canteen is pointless? Well, if a person expected to be afoot in the desert for days or weeks, a single quart of water wouldn't make much difference one way or the other. But a canteen of water can make a considerable difference when trail-riding with friends or competing in an organized event. Table 2 assumes the person is starting off with a normal water balance. Actually, if he's forced out of a race or enduro by heat and hypohydration he probably is, at that point, already 5% or more low on water. Once down, he has to spend some time waiting for help to arrive. Since a canteen represents about 2% of his weight, it can reduce his existing hypohydration by two percentage points...or it can keep hypohydration from getting two percentage points worse. That could mean the difference between staying awake and alert alongside the trail, and wandering off in a daze or falling asleep in a patch of shade somewhere off the trail where the cleanup crew will fail to see him as they sweep the course.

Aside from its fairly limited physical benefits, a canteen of water can be highly valuable psychologically. If one is dizzy, nauseous and uncomfortable, a few swallows of water can make him *feel* a lot better. Knowing that he has some water left helps him to wait patiently for the cleanup crew and to avoid doing dumb things like trying to walk out without having any clear idea of the distance or direction to go. For these reasons he'll probably want to drink his water a little at a time, so there'll be a little more available for as long as possible. Knowing that he *can* take another drink if he absolutely has to is psychologically beneficial—even though there is no purely physical advantage to rationing his water to a swallow at a time.

On most bikes it's fairly easy to nestle a canteen among the fork tubes and triple-clamps, holding it in place with a couple of bungee cords. Finding a way to carry more water on the machine is not so easy. A canteen can be carried on a cartridge belt around the waist. The disadvantages of this are that the weight pulls the rider down, the canteen flops up and down and tends to slide around the body to the worst possible position, and as sure as God made rocks and cacti, he'll eventually fall on it. If water is carried on the waist at all, use *two* canteens, not just one. Besides the obvious advantage of doubling the water supply, the balanced weight tends to ride more smoothly (assuming the rider drinks from the canteens alternately) and the belt

doesn't have as much tendency to turn around the waist, placing the load in an awkward position. Arrange the canteens so they are back behind the hip bones. A simple but often overlooked trick for minimizing damage to the body when falling is to use cheap plastic canteens instead of solidly built, military surplus, metal ones. The plastic canteen will burst on impact, acting as a shock absorber, whereas a sturdy stainless steel canteen will drive right into the body, maybe rupturing the spleen. Of course, if the rider never falls, the metal canteen should be chosen for its durability.

Don't overlook the most obvious place of all to carry a supply of water: in the body. Be sure to drink plenty of water for several hours in advance of a race, so as not to set out already hypohydrated to some degree. And just before leaving the starting line, drink as much water as can be comfortably tolerated in the stomach. If carrying one canteen on the bike, then drinking a pint of water just before each foray from camp effectively increases the on-board water supply by 50%. More than a pint will probably produce a sloshy stomach and interfere with riding.

If cross-country racers are each required to carry a quart of water, as has been proposed, it won't make a great amount of difference to the individual rider. He won't get significantly farther with his canteen than without it. Perhaps the most important benefit of this proposed rule would be that several other riders, whose machines are running well and who don't need water badly themselves, could supply a good deal of water to the occasional competitor who is forced out with severe hypohydration at some remote spot on the course.

What's actually needed is not so much a new rule as a better way to carry water on a dirt bike. Herewith are some suggestions to enterprising accessory manufacturers:

(1) A combination water tank and number plate that would quick-disconnect between the forks and fill the hollow between the triple-clamps. It should be possible to double the capacity of a canteen here if the tank is efficiently shaped.

(2) A tank of about two quarts capacity that quick-clamps to the handlebars and to the handlebar cross-brace, or that clamps solidly and has a drinking tube.

(3) A saddle-tank that attaches to the frame loop that holds the rear fender behind the seat. This wouldn't work on some bikes, of course, but it would place the added weight in the most favorable location. It would make sense for the really long races through hostile terrain and for extended trail riding.

(4) A kidney-belt with a pair of suitably located, non-flopping canteen

pouches built in. This would be a big improvement over the usual cartridge belt that slides around and allows the canteens to pound up and down. A kidney-belt circled by soft, flat plastic water pouches would be even better, if it could be made sufficiently durable, and would greatly enhance protection for innards in case of a fall.

So far we've been talking only about water. But it isn't just water that the body loses when one sweats, nor is pure water the only fluid one can drink. One line of argument, which everyone has probably heard, is that the body loses salt as it sweats, so a rider had to take salt tablets to make up this loss. Also, salt tablets make one feel thirstier, which will lead to more drinking, which is good. There is some truth in this, but also a lot of myth. Involuntary hypohydration—the failure to drink as much as is needed to replete a water deficit—can happen when water is lost without losing salt, when salt is lost without a proportionate loss of water, or when salt and water are lost together. The former can be replaced by means of salt tablets, but ordinary table salt is not the only salt the body needs; potassium chloride, for example, is also necessary. As a person sweats, the salt concentration may go up in some body fluids, down in others. Excessive salt consumption can depress thirst rather than stimulate it, thus increasing involuntary hypohydration. And the most striking consequence of excessive salt consumption is that should one manage to raise body salt above normal, he will require additional water to purge it from his system; this means an increase in hypohydration.

Salt water, alcohol, gasoline, blood and urine are ineffective water substitutes because they contain chemicals that must be purged from the body, and it takes the kidneys more water to remove these foreign substances than is provided by drinking the fluids in the first place. The kidneys require *more* than a quart of water to flush out of the system the amount of salt ingested by drinking a quart of seawater. So drinking seawater increases hypohydration. Brackish water, however, provides some net gain in water after the kidneys remove its impurities.

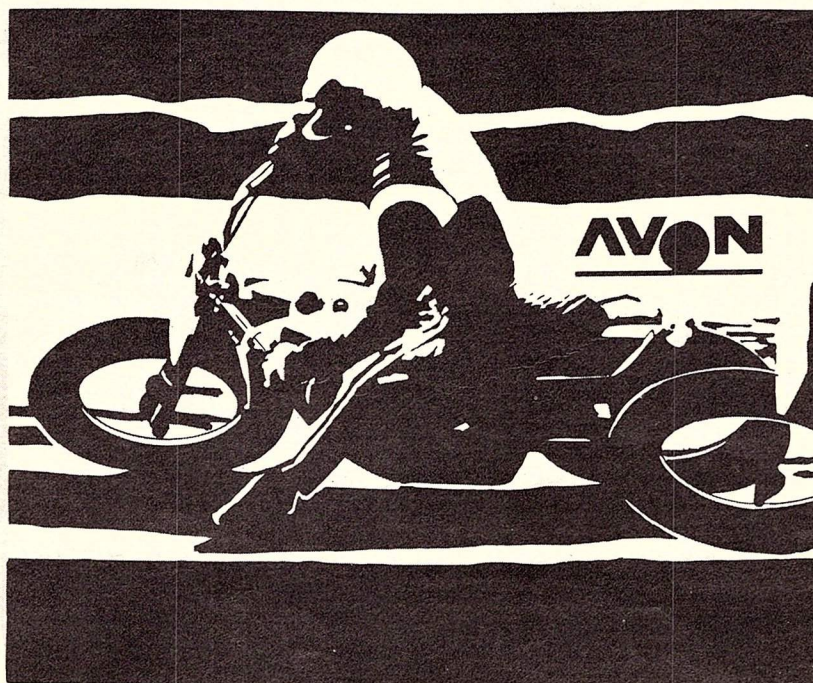
After profuse sweating, some extra salt is needed, but the amount is not terribly critical. At mealtimes there will probably be a heightened craving for salt on food. Salting meals more heavily than normal approximates the amount of extra salt needed due to sweating. Sprinkle it on and don't worry farther about the matter. Some people have been led to believe they should force down salt tablets, even to the extent it makes them nauseous. Forget it. That much extra salt isn't needed. It would be better to force down more water

(Continued on page 102)

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WATER AND YOU

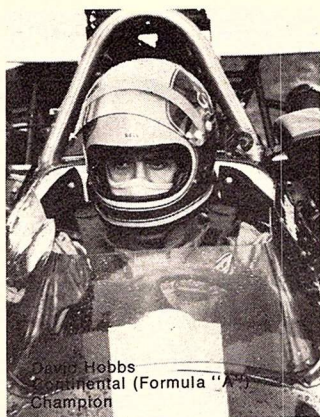
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than one feels like drinking, instead of more salt tablets than one feels like eating.

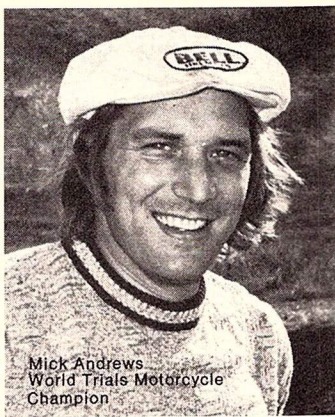
One can't go wrong by drinking pure water, but some studies have shown improved water retention if the liquid is nearly neutral on the acid-alkaline scale (pH about 6), if it contains a fractional percentage of chlorides (salts), and if it is fortified with glucose (sugar). The liquid should be fairly cool to make it palatable, but it should not be ice-cold. Ice-cold liquids remain longer in the stomach. Since water is absorbed through the walls of the small intestine much faster than through the stomach walls, ice-cold drinks take longer to reach the bloodstream where they're needed. If an ice-cold drink seems to satisfy your thirst better, this is another instance of involuntary hypohydration. Vigorous exercise right after drinking also delays stomach emptying.

So acidic beverages like tea or coffee are not ideal. Tepid, sweetened, weak tea is preferable to ice-cold, acidic lemonade. Soft drinks containing real sugar are preferable to dietary soft drinks, but the carbonation of such beverages makes them difficult to drink in the necessary volumes. Beer and wine are less effective than plain water, because only part of their water content is a net gain. And good old Gatorade is as close to an ideal drink as is commercially available today...but ignore that stuff in the advertising about drinking it over ice. That's okay if you're lounging on your patio or watching football on TV, but it's a whole different ball game when you need to get several quarts of water into your body as quickly and efficiently as possible.

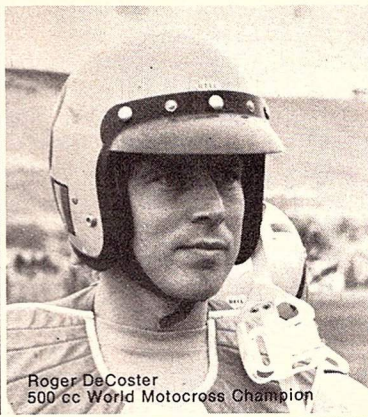
The most important single thing to remember is that thirst is not always a dependable guide to the amount of water needed in order to regain normal water balance. High temperature, low humidity, and strenuous physical activity all combine to depress thirst, causing involuntary hypohydration. Yet these are the very conditions in which rate of water loss and degree of hypohydration are apt to be greatest. Consequently, under such conditions a person should more-or-less force himself to drink as much as he can as often as he can. He will still hypohydrate to some degree because of his inability to replace water as quickly as he loses it. Involuntary hypohydration seems to be an awkward, inconvenient, and potentially dangerous quirk in the human water metabolism, but awkward quirks or not, it's the only metabolism we've got. ☐



David Hobbs
Continental (Formula "A")
Champion



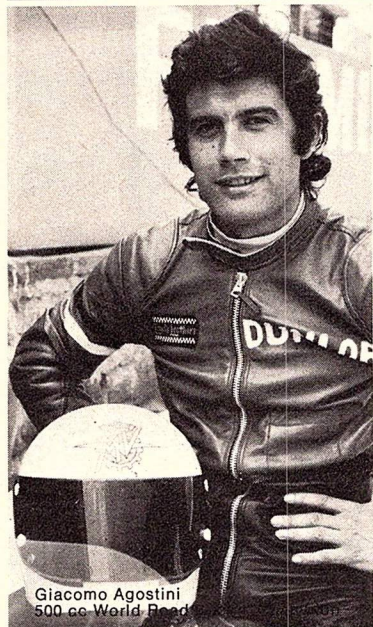
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World Trials Motorcycle
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500 cc World Motocross Champion



Gerry Glenn
N.H.R.A. World Champion
AA/F Eliminator



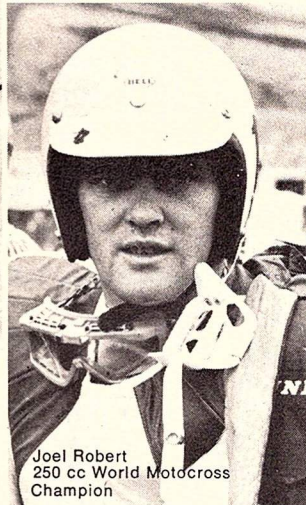
Giacomo Agostini
500 cc World Road
Champion



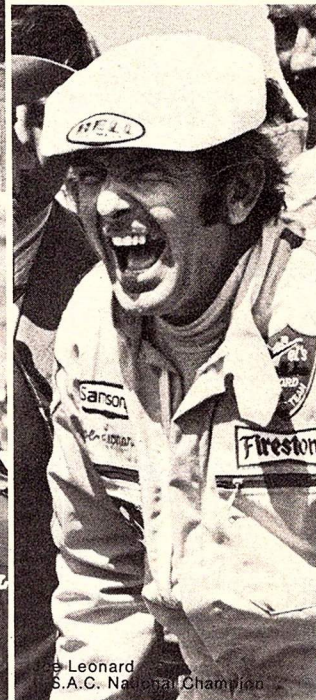
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MOTORCYCLE INDUSTRY COUNCIL



NOVICE

Continued from page 84.

day of practice before a race can make a big difference. But a good night's sleep is also essential and if you don't have a good warm camper, forget it."

As they were bouncing along the dirt road behind the caravan of trucks Paul noticed that the dust was so thick he could hardly see the truck directly in front of them. "If it's this dusty on the course, how in the hell will we ever see where we are going?" he asked.

"This is nothing. It rained a couple of days ago. It really shouldn't be too bad. You should see it in the summer. Sometimes it gets up to a 110 or 15 and the dust is so thick you can cut it with a knife. Times like that it's pretty rough. Can't see more than a few feet."

"So how do you race, then?"

"I dunno, you just do. Got to love it, I guess. 'Course the farther towards the front of the pack you get the better—if you can. 'Cause then you have just that many fewer guys' dust to eat. And you try to get on the upwind side of the course so the wind is blowing away from you."

"What if the wind isn't blowing?"

"The wind is always blowing on the

desert. Ninety percent of the time, anyway."

"Anything else you can tell me that I ought to know?"

"Oh, I dunno. Some of the guys wear wetted-down neckerchiefs around their faces like the outlaws in the old west-erns. Keeps the dust out of their throats. And a canteen of water or Gatorade is a good thing to have along. And of course you already know about having a tool kit, extra plugs, a master link and some extra chain links along. Let's see.... Don't try to win the race right away. Get to the smoke bomb as quickly as you can because you don't want to eat any more guys' dust than you have to. But after that, try to pace yourself. Ride hard, but not as hard as you can. Remember, you've got 100 miles to go."

They were approaching the pit area now. Paul saw before him what looked like an overnight town. Campers and trucks were parked in clusters stretching out in three directions from the intersection with another dirt "road" they were almost to. In three or four spots there were portable johns. People were lined up in front of each of them. People were standing around fires and portable heaters. Some were having breakfast. Newer arrivals were unloading bikes. Riders were making last minute

checks and repairs on their machines. Many riders were zipping up and down the roads. There was a deafening cacophony of sound.

Jack pulled up to a couple of club members passing out paper bags for trash, and envelopes with instructions. He tried to ask the one who handed these articles to him where the Desert Hares were camped. The man shouted back that he didn't know but that they should look for a sign or the club's banner.

Jack pulled to the side to let the trucks behind them proceed. There were many arrow signs on stakes driven into the soft sand pointing down one of the three directions of the intersection. Jack spotted the sign he wanted and made the appropriate turn. Paul saw a big crowd of riders gathered in front of a card table outside a camper. A couple of men sat at the table and checked the riders' entry blanks and a line was formed outside the camper where the riders were paying their entry fees to a couple of wives of the sponsoring club. "Sign-in," Jack shouted, pointing. As they drove past the pit areas of the various clubs Paul was intrigued by the banners and the jumpers that the riders wore: Checkers, Shamrocks, Antelope Ramblers, Viewfinders, Rams, Invaders,

(Continued on page 110)

October 24 1971—Gary Bailey's Bultaco failed to finish. That was the only time!

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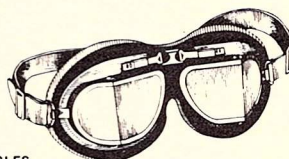
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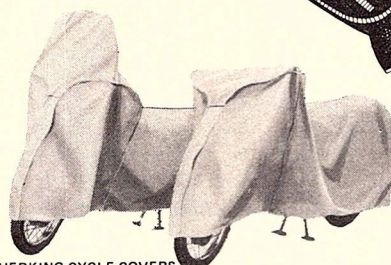
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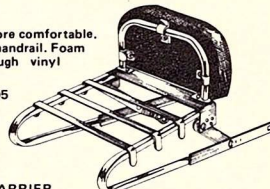
Protect your motorcycle year round from rain, snow, sun, dust and dirt. Made of heavy gauge plastic with cloth backing. Durable, waterproof and fire resistant. Folds compactly when not in use. Handy travel case included.

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Make your rear passenger more comfortable. Clips easily and securely to handrail. Foam padded, covered with tough vinyl upholstery.

AC-P1 \$5.95



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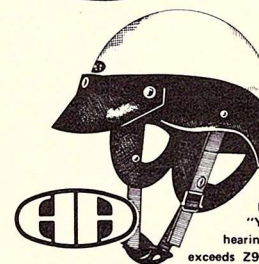
W-139 \$19.95



ARAI "ASTRO" HELMET

Made by H-A, one of the world's largest and best known manufacturers of safety headgear. The "Arai" is one of the few helmets which meets or exceeds the new Snell 70 Standard, which far surpasses the old Z90 Standard. Arai is legal throughout the U.S. and is approved for all official sports car and motorcycle racing. Full fiberglass shell with "Confoam" liner and nylon-covered foam rubber upholstery. Beautifully finished with "hand stitched" trim and nylon chin strap. In white only. Can be sprayed or painted any color. Specify hat size.

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Sizes "A" (S&M), "B" (L&XL).

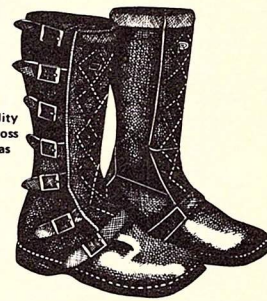
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LANGHORNE Lace-Up BOOT

Ideal for all kinds of rough terrain, including woods, trails and desert. Full length lace-up for calf and ankle support and protection. All leather, 17" high, with extra heavy gauge thickness on foot. Reinforced at all wear points. One-piece sole/heel made of long wear composition rubber. Has excellent sliding characteristics, yet hold firm on footpops. In black, sizes 7-13, "E" width only.

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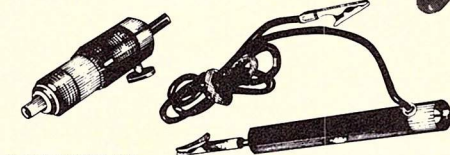
This boot is made of the same fine quality material and workmanship as the Moto-Cross boot. Identical except for the sole which has a special cleated pattern for maximum footing. Black sizes 7-12, "D" width.

No. 914 \$49.95

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Specially designed and manufactured for competition rider. Made of top quality leather throughout, 16" high. Quilted padding protects shins and instep from stones, branches, etc. Adjustable side buckles for snug fit. Smooth, one-piece sole/heel is made of durable, hard rubber for high speed sliding. Upturned toe for minimum snagging. In black, sizes 7-12, "D" width only.

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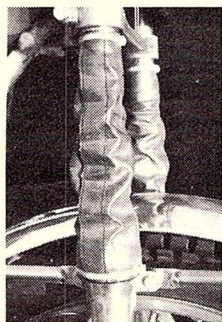
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Dirt is getting in to ruin
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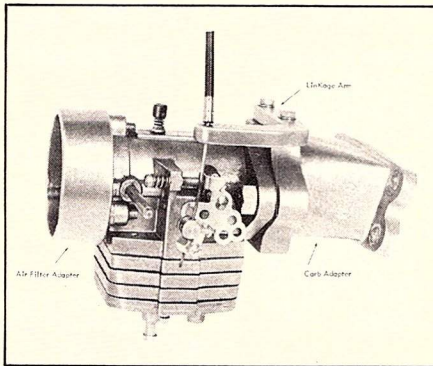
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NEW MODS & PRODS

Continued from page 97

DIAPHRAGM CARB MANIFOLDS



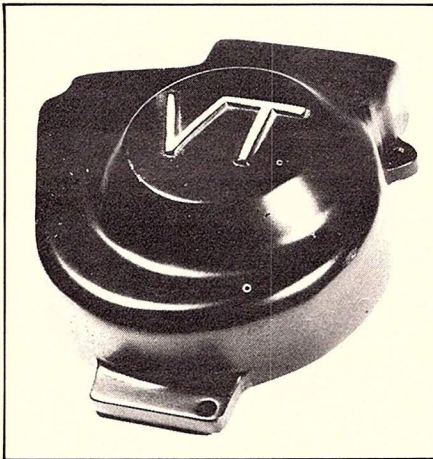
Three new adapter manifolds, permitting use of the SR and WDA diaphragm carburetors, are available through G.E.M. for owners of CZ, Husqvarna, and Maico bikes.

According to the manufacturer, the new accessories allow owners to gain an easy "bolt-on" improvement in performance, giving the advantages of the diaphragm-type carb, which include better throttle response, adjustable high- and low-speed jets, and no flooding when the bike is laid down.

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Suzuki TC90s and TS90s can gain a claimed substantial power increase with the installation of the Van Tech Special Side Plate. By increasing the clearance between the carburetor mouth and the side plate's internal wall, which in turn increases the velocity of the air approaching the mouth of the carburetor, a substantial gas/air charge is achieved.

The black-finished Special Side Plate
(Continued on page 108)

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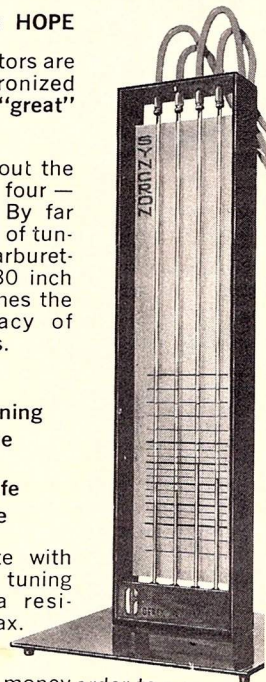
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NEW MODS & PRODS

Continued from page 106

can be installed with a screwdriver in less than five minutes. Order directly from Suzuki Fun Center, Dept. CW-4, 515 N. Victory Blvd., Burbank, CA 91502. Price is \$10.95.

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Paul Dunstall's usual inventory of special equipment has been supplemented with the addition of a group of items for Honda CB750s.

Included among the list of Dunstall equipment for Honda 750s are a custom alloy gas tank; a fiberglass mudguard; a GT fairing designed for use with Dunstall clip-ons which is available in burgundy, maroon, green or blue; a touring fairing available in black or white; Dunstall clip-ons; a footrest control kit designed to be used with the clip-ons; and a fiberglass Dunstall tank and dual seat unit also available in burgundy, maroon, green or blue. Also featured in the Honda catalog is a power street exhaust system for improving acceleration and top speed performance, which is available with decibel or dual silencers.

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For further information and more complete specifications and descriptions, write Paul Dunstall Organization, Dept. CW-4, 156 Well Hall Road, London, SE 9, England.

SUPER CHAIN LUBE

A new chain lubricant is offered by the Covina, Calif. firm of Jeeco Lubricants. The new lubricant, called Jeeco Graphaplate, has been derived from the company's highly successful industrial chain lubricant.

Graphaplate is a form of colloidal graphite suspended in a liquid "carrier." Once sprayed onto a clean chain, the "carrier" evaporates, leaving a tough, low-friction coating of graphite between the chain's rollers, pins and side plates.

Because the "carrier" evaporates, there is nothing on the chain that will attract dirt and grit, the main ingredients of chain and sprocket wear. Chain stretch and kinking are held to a minimum, and fewer chain adjustments are necessary. Graphaplate is also ideal for control cables and areas which can only be lubricated by spray.

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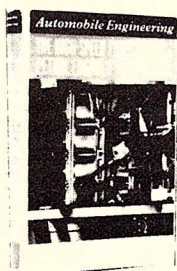
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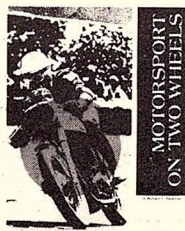
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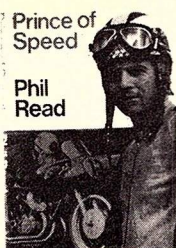
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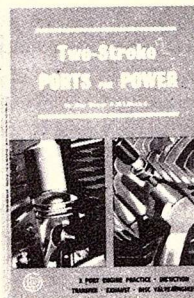
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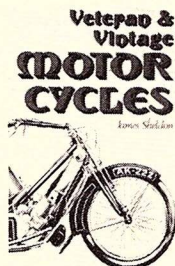
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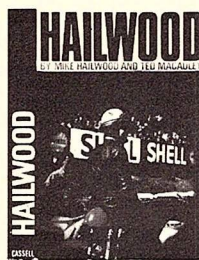
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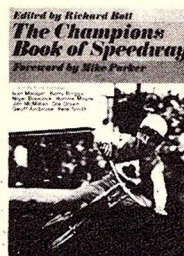
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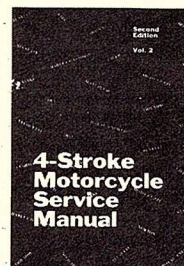
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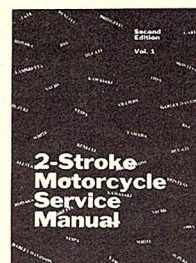
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NOVICE

Continued from page 104

Victors, San Gabriel Valley. Aren't there any riders who don't belong to clubs besides us, he thought.

Jack spotted the camp of the Desert Hares and wheeled in. He looked around for the couple of members he knew, but didn't see them. They got out and began unloading the bikes. The air was still cold and the wind was blowing. But the sun was shining from a cloudless sky. It would be warm in a couple of hours, but Paul was glad he had worn his longjohns.

Their bikes started after just a few kicks. They sat warming the engines. Paul was glad he had checked his bike over carefully during the week. After a couple of minutes Jack signalled that they should go to the sign-in area. They rode slowly in second gear, getting the feel of the bikes and the dirt. Small kids on minibikes, wives and girlfriends on trailbikes and other racers warming their bikes were going by them in what seemed to be all directions.

As he waited in line to turn in the entry blank he had filled out, Paul read the paper they had given him when he and Jack arrived. It talked about keeping the desert clean, being disqualified if you cut the course, the trophy presentation. And it said there would be a riders' meeting at 9:30. Paul looked at his watch: 9:15. "There's a riders' meeting in fifteen minutes," he said to Jack, raising his voice to be heard over the passing bikes.

"Forget it," Jack said in a loud voice, "you can't hear what's being said, anyway. They just tell you that three lines mean danger and to stay on the course if you break down so that the clean-up crew will find you. And they tell you what the course is like. We'll find that out soon enough, anyway."

After paying his fees, Paul was given a paper pie plate with a number marked on it in grease pencil and a large piece of cardboard with the same number on it. Jack told him to take a few strips of masking tape from several rolls hanging from nails on the back of a trailer. They walked over to the bikes and Jack helped him tape the pie plate over the regular number plate his dealer had sold him. Then they taped the cardboard across his gas tank, number side down.

"What's this for?" he wanted to know.

"For checkpoints. They'll have two or three checkpoints. That's something else they tell you at the riders' meeting. Anyway, at these checkpoints they mark your card with different colored crayons. Shows you made the whole course."

They went back to the truck, taped Jack's card to his tank, topped their gas

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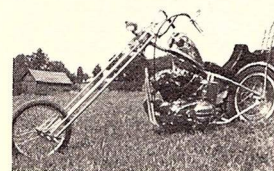
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CORBIN is the designer and manufacturer of the Honda 750 frame pictured above and the XLCH frame pictured below. Each frame is heavy wall seamless mild steel structural tubing, heliarced welded and contains all engine mounting points, brake and axle restrainers and is fully guaranteed.



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Cycle-Aide

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tanks off, put their watches and wallets inside the truck and locked it up. They put on kidney belts, goggles, helmets, and finally gloves. They still had 15 minutes before they were due at the starting line. Jack's friends in the Desert Hares were nowhere to be seen. "Come on," Jack shouted, "let's ride 'til time to go to the line."

"Thanks," Paul said, "but I've got other ideas. I'm going to visit the little house one more time before the race."

"Okay, guy," Jack laughed, "Good luck. I'll see you after the race. And remember, if either of us doesn't show up within a reasonable time after the race is over, the other one takes the rope and starts over the course backward." He rode off.

When Paul finished his business he rode over to the starting line. His first impression was one of utter confusion. There were roughly two lines, experts and juniors in front and novices in the rear. But they were only a semblance of lines. Riders were going back and forth in front of, between, and behind the lines. A few photographers, wives, well-wishers and hangers-on were mixed in the crowd. He couldn't spot Jack.

He was lined up in the second row, almost elbow to elbow with a couple of other riders, but the noise made conversation impossible. He noticed a member

of the sponsoring club going from bike to bike in the front row with a rubber stamp and pad, stamping the tank cards to show that the riders had started where they were supposed to. This went on for awhile, and then another club member rode past the line indicating with a slicing motion at his throat that they were to kill their engines. Gradually the bikes were shut off until the only noise was a trailbike nearby. Tension hung in the air like a rain-heavy cloud. The riders raised their legs to their kickstarters, poised for action. About a quarter mile out a pick-up was parked perpendicular to the line. A small group of people were standing in the truck. Slowly they raised a large, bright banner. For maybe thirty seconds everyone seemed to hold their breath, then the banner dropped, the riders kicked their machines to life and leapt forward. As they raced toward the column of smoke Paul could see them artfully dodging greasewood bushes and picking up, or making, trails. A spiral of dust rose in a rooster-tail behind each bike and the dust converged into one dense cloud. Looking to his right, then to his left, Paul saw that the line of riders must have been a half-mile wide.

When they had seen the start, the novices, about three times greater than the group that had just left, cranked

their bikes up and rode the 10 ft. to the line the others had just vacated. They sat there revving their engines. The wives and photographers of this group moved in. Several riders lined up directly behind a large greasewood bush, parked their machines and began flattening out the bush. Presumably they were going to ride over it because there were no other open spots available on the starting line—which was now about a mile wide. Paul looked at the bike next to him. An extra plug was mounted in the head so that the rider could switch without having to change plugs. And strapped to his frame was a sparkplug holder with three extra plugs. Wow, Paul thought, he's got five plugs for a single cylinder bike. I hope the one extra plug I have with me will be all that I need. And while I'm hoping, I may as well hope that I don't even need that.

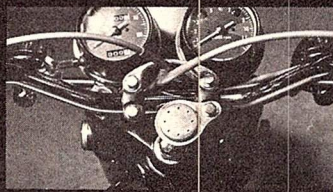
The guy came by and stamped Paul's tank. Riders kept firing their bikes up and gunning them, warming them for the race. Paul kicked his machine once and it didn't start, twice and nothing,

(Continued on page 114)

Less Sound
More Ground

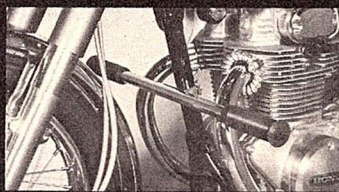
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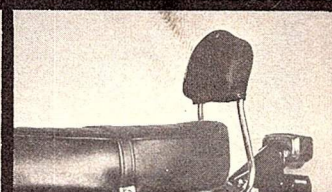
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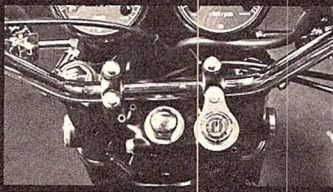
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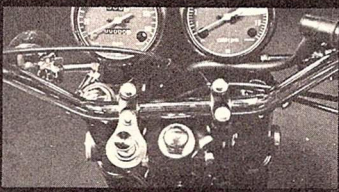
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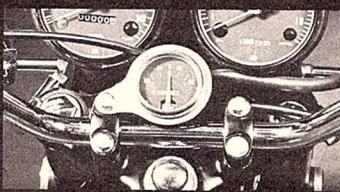
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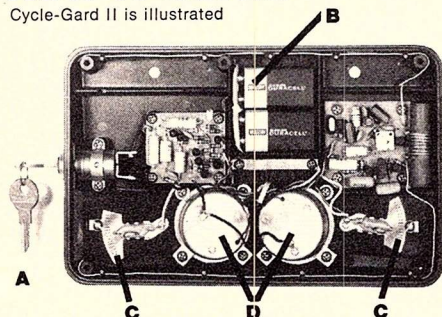
Next to hiring an armed guard or taking your cycle to bed, Cycle-Gard® is the best protection you can get. It's a warning device that blasts away with twin horns if your cycle is disturbed in any way. Once you set it with its pickproof lock, a thief just can't disarm it. It's sealed and baffled against destruction by water, spray paint or pressurized freon. The Cycolac case is virtually unsmashable. The circuitry is shockproof. Cycle-Gard attaches to your cycle's license plate frame, out of the way. There's no wiring to mess with.



your cycle your cycle! the security really works

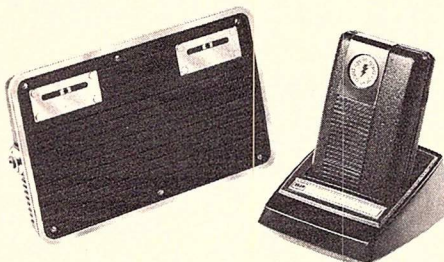
How it works

Cycle-Gard II is illustrated



When you arm Cycle-Gard by removing the key (A), test "beep" tells you the batteries (B) are OK (note the backup battery for fail-safe protection). Should either preset switch (C) trip the alarm mechanism, the twin horns (D) emit a piercing "bee-bee-bee" for as long as your cycle is being disturbed, and for a full minute after a thief has taken off empty-handed. If your cycle is upset, the horns sound until you shut them off.

Two models



That's Cycle-Gard I. Cycle-Gard II is identical, but it also features a built-in radio transmitter that broadcasts to this pocket receiver, which you carry with you. The signal comes in up to 500 feet away. That's what we claim. (Many owners say it comes through at better than twice that distance.) The receiver stays in its own automatic recharger at night. It's on duty while recharging.

THOUSANDS IN USE

Cycle-Gard is made in U.S.A. by a leading electronics firm. More than 16,000 units have been sold. They're really doing the job, from what these and many other users tell us (actual letters on file):

"Prevented the theft of a carburetor."
D. P., Moraga, Calif.

"If someone taps my bike while parking, Cycle-Gard yells bloody murder. Great product."
A. F., Bronx, N.Y.

"I caught someone trying to take something off my bike."
I. F., Phila., Pa.

"It's the best protection next to watching the cycle yourself."
S. S., Brattleboro, Vt.

"It survived a 45 mph collision which totalled my bike . . . still works well."
J. J., Baltimore, Md.

"It saved \$800 worth of Kawasaki! When I got to my bike, I saw a pickup ripping out of my driveway."
A. W. B., Ft. Bliss, Texas

"Cycle-Gard is a product that does what it claims and does it well. It was nice to purchase something new that I didn't have to take back because it didn't work."
K. W. B., Royal Oak, Mich.

The nitty-gritty

What does a Cycle-Gard cost? Cycle-Gard I is \$29.95, complete. Cycle-Gard II, with radio transmitter, receiver and charger, is \$89.95. Not cheap . . . but neither was your cycle.

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Now the good news. Many leading cycle insurers give premium reductions to Cycle-Gard users: up to \$25 a year for Cycle-Gard I, up to \$50 a year for Cycle-Gard II. Ask your dealer for these company names, or ask us. These savings could pay for your Cycle-Gard in about 18 months.

How to get one

See your cycle dealer. Or send us a check or money order. We'll ship within 24 hours. Your money will be refunded if you're not completely pleased with your Cycle-Gard.

Get one. You'll sleep better with your cycle out of your bed!

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WARNING: There is only one Cycle-Gard! Beware of look-alike, sound-alike devices selling for a little less!

NOVICE

Continued from page 111

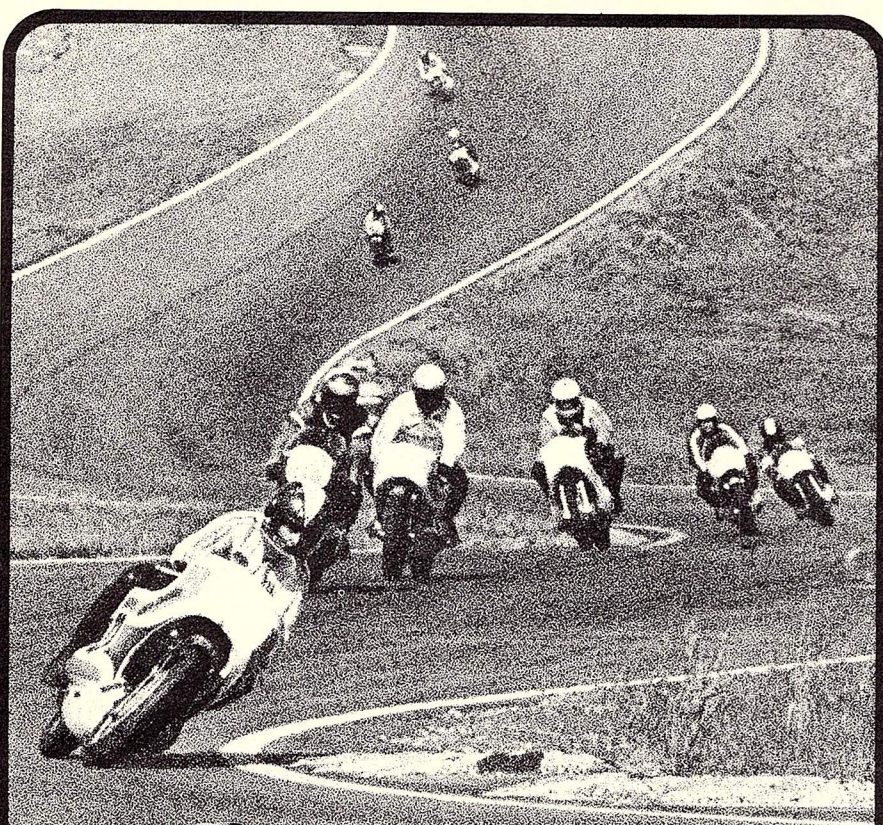
three times, and he began to panic, and then on the fourth kick it started. He let it run at little more than an idle, not wanting to use too much gas. He had a small tank and he wasn't sure he would make the full 50 miles without running out.

Now the rider passed them, making the gesture to stop the engines. Paul did so at once. He noticed that several riders near him kept their bikes running. Another rider passed, repeating the kill-your-engine signal. Gradually the bikes were shut off. Paul had an uncomfortable feeling in his stomach. Butterflies. He wanted to go to the bathroom. Almost all of the bikes were stilled now. Then somebody down the line started his. The guy next to Paul cursed, "It never fails," he said, "every race there is some moron that has to start his bike when everyone is waiting for the banner."

Finally all of the bikes were quiet. Everyone had their kickstarters ready. The banner came up. Paul's throat was as dry as a tomb. If I'm thirsty now, he thought, what will I be after 45 miles? It seemed like the banner had been up for five minutes. He wondered why they only kept it up for a half minute for the experts and now kept it up so long for the novices. Then it dropped.

Paul kicked his bike over and it didn't start. Now he felt utter frustration as the others around him were already accelerating away. He kicked again. Nothing. He choked it and cranked. It sprang to life. He grabbed a handful and dropped the clutch. He saw what seemed like hundreds of riders in front of him. But he was already passing riders—a very satisfying experience. With his peripheral vision he saw that there were still many riders behind him or no farther out. Automatically he shifted through to third gear. He estimated he was running about 40. The cloud of dust had settled on him and he could not see more than 15 ft. He tried to sit down but kept hitting ruts, bumps, and going over bushes. He found that he was standing more than sitting. He was still passing other riders, although not as frequently now. Occasionally a guy would go rocketing past him, perhaps 20 mph faster than he was running—evidently a real hotshoe who couldn't get his bike started or had some problem that had delayed him. He had no idea where the smoke bomb was or which way the course went. But through the thick dust he could make out shapes of other riders and, sometimes, their bright colored club vests. If he was off the course, he wasn't the only one.

(Continued on page 124)



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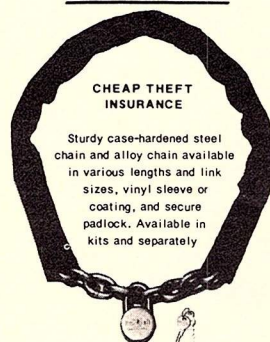
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This motorcycle is what they live.

Hodaka people combine this "performance-proving" with superb craftsmanship. The result is that the buyer gets a motorcycle that he can depend on.



Hodaka test rider in competition, blasting down an Oregon mountain in the Trask Mt. Two-Day Trial.

Athena, Oregon, the home of Hodaka, is hidden in the rolling foothills of the Blue Mountains, affording a natural terrain for the testing and development of this superb, lightweight motorcycle. Hodaka was born in the desert sand and mountain mud of Eastern Oregon . . . christened in an environment ideally suited for the refinement of motorcycle design. Hodaka is continually being functionally improved by our engineers . . . men who live motorcycling.

For eight years, these men have devoted their vocation and recreation to the development of just one machine.

This is the story of Hodaka. The motorcycle born eight years ago from the desires and designs of a few motorcycle enthusiasts who wanted to produce the world's best lightweight motorcycle.

In this one model design, thinking motorcycle buyers have found the features of a superb, lightweight motorcycle. Basically, Hodaka is an outstanding trail motorcycle, and comes close to being the perfect multi-purpose machine for most any kind of rugged use.

Enduro riders find that features like the trip-set odometer, which allows them to add or subtract tenths of a mile, wide ratio transmission, adjustable folding foot pegs, and an improved suspension system, front and rear, make Hodaka a wise choice. The newly developed cush-hub rear end adds life to a machine famed for its durability.

You don't have to haul Hodaka to the back country. It's fully equipped from the crate, street legal and raring to go with big, bright lights and superb handling characteristics.

Few other motorcycles in Hodaka's class can equal the performance of its piston port, two stroke engine. Power is developed over a broad RPM range. The engine doesn't have to be wrung-out like a dish rag to perform. Above all, Hodaka's power plant has proven itself durable and dependable.

The widely imitated twin-tube steel frame surrounds and protects the engine and the strong 5-speed transmission from the impact of rocks and logs in rugged cross country competition, where Hodaka is outstanding.

Hodaka has the features and qualities that will get you coming and going. It's the right choice as you come into the motorcycling world for your first bike, or going back from a weighty slug to a more manageable, quick lightweight.

You can enjoy the right feeling of unity with your Hodaka . . . correct power-to-weight ratio . . . "Hodakability".

Many manufacturers annually crank out a confusing line-up of models and styles . . . with

each successive model year stomping the last into forced obsolescence. Hodaka has constantly improved the one, basic design, engineering improvements that can be added to previous models with a retention of value being the important result to the Hodaka owner.

Hodaka has the ability . . . Hodaka has the equipment and performance. It's what happens when a machine is designed, engineered and hand-crafted by men who are knowledgeable motorcyclists, themselves. It kind of brings to mind the early days of the silversmiths and the carriage-makers, and so on.

They pride themselves in doing one thing . . . and doing it better than others . . . through attention to detail and maintaining their high standard of workmanship.

We have this thing about our Hodaka . . . we love it! And we'd like to share it with you. Examine one at your Hodaka dealers. Hodakability's tough to beat.



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RACING REVIEW

NUMBERS STANDARDIZED

By recent ruling of the American Motorcycle Association Competition Congress, the system of national number assignment has been standardized.

Under this new system, numbers assigned in 1970 were used as a starting point for 1972 assignments.

Once a rider earns a national number, he may keep that same number from year to year, providing he finishes in the top 65 riders in national points or finishes in the top 25 riders in combined points. All previous No. 1 riders, still active in racing, receive one digit numbers. Any numbers not accounted for will be assigned. In other words, things are more or less the same as they were in the good old days.

1972 OFFICIAL NATIONAL NOS.

- 1 Dick Mann, Richmond, Calif.
- 2 Not assigned
- 3 Gene Romero, San Luis Obispo, CA
- 4 Bart Markel, Flint, Mich.
- 5 Roger Reiman, Kewanee, Ill.
- 6 Not assigned
- 7 Mert Lawwill, San Francisco, Calif.
- 8 Not assigned
- 9 Gary Nixon, Phoenix, Md.
- 10 Neil Keen, St. Louis, Mo.
- 11 Don Castro, Hollister, Calif.
- 12 Eddie Mulder, Burbank, Calif.
- 13 Dave Aldana, Santa Ana, Calif.
- 14 Cal Rayborn, Spring Valley, Calif.
- 15 Ralph White, Carson, Calif.
- 16 Dave Sehl, Atlanta, Ga.
- 17 Yvon DuHamel, Quebec, Can.
- 18 Jim Odom, Fremont, Calif.
- 19 Keith Mashburn, Santa Susana, CA
- 20 Dave Smith, Lakewood, Calif.
- 21 Robert Winters, Ft. Smith, Ark.
- 22 Terry Dorsch, Granada Hills, Calif.
- 23 Dave Hansen, Hayward, Calif.
- 24 Jim Rice, Palo Alto, Calif.
- 25 Don Emde, San Diego, Calif.
- 26 Cliff Carr, Watertown, Mass.
- 27 Duane McDaniels, Milford, Mich.
- 28 Royal Sherbet, Largo, Fla.
- 29 Larry Palmgren, Freehold, N.J.
- 30 Art Baumann, Brisbane, Calif.
- 31 Rex Beauchamp, Drayton Plains, MI
- 32 Dusty Coppage, Chatsworth, Calif.
- 33 John Weaver, Ft. Wayne, Ind.
- 34 Dallas Baker, Orange, Calif.
- 35 John Cooper, Derby, Eng.
- 36 Charles Chapple, Flint, Mich.
- 37 Mel Lacher, San Diego, Calif.
- 38 Chuck Palmgren, Freehold, N.J.
- 39 Jess Thomas, Sea Cliff, N.Y.
- 40 Ted Newton, Pontiac, Mich.
- 41 Ginger Molloy, Brisbane, Calif.
- 42 Fred Guttner, Detroit, Mich.

(Continued on page 120)



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RACING

Continued from page 116

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- 44 DeWayne Keeter, Ojai, Calif.
- 45 Doug Sehl, Ontario, Can.
- 46 Paul Bostrom, San Pablo, Calif.
- 47 Charles Seale, Lantana, Fla.
- 48 Allen Kenyon, Cupertino, Calif.
- 49 Dave Dameron, Riverside, Calif.
- 50 Frank Camillieri, Chelsea, Mass.
- 51 Hurley Wilvert, Long Beach, Calif.
- 52 Ronnie Rall, Mansfield, Ohio
- 53 Larry Schafer, Hyattsville, Md.
- 54 Robert Lee, Ft. Worth, Texas
- 55 James Jones, Kirkland, Wash.
- 56 Charles Thielke, Seattle, Wash.
- 57 Edward Hermann, Milwaukie, Ore.
- 58 Jody Nicholas, Newport Beach, CA
- 59 Skip VanLeeuwen, Hollywood, CA
- 60 Charles Joyner, Oregon City, Ore.
- 61 Ron Grant, Brisbane, Calif.
- 62 Robert Martin, Orchard Lake, Mich.
- 63 Walt Fulton, Santa Ana, Calif.
- 64 Nick Theroux, San Francisco, Calif.
- 65 Al Gaskill, E. Detroit, Mich.
- 66 John Skinner, Auburn, Ala.
- 67 Patrick Marinacci, Seattle, Wash.
- 68 M. Van Bibber, Albuquerque, N.M.
- 69 Sonny Burres, Portland, Ore.
- 70 Mark Williams, Springfield, Ore.
- 71 James Maness, Augusta, Ga.
- 72 Michael Anderson, Van Nuys, Calif.
- 73 Kel Carruthers, El Cajon, Calif.
- 74 Mike Mumford, Tustin, Calif.
- 75 Donald Twigg, Hagerstown, Md.
- 76 Frank Gillespie, Berkeley, Calif.
- 77 Robert Davis, Battle Creek, Mich.
- 78 David Lawson, Yukon, Okla.
- 79 Lloyd Houchins, La Crescenta, Calif.
- 80 Emil Ahola, Tacoma, Wash.
- 81 Gordon Dusenbery, Wichita, Kan.
- 82 Jack Warren, Millington, Mich.
- 83 Glen Adams, Seattle, Wash.
- 84 Eddie Wirth, Manhattan Beach, CA
- 85 William O'Brien, Waukegan, Ill.
- 86 William Elder, Vancouver, Wash.
- 87 Mark Brelsford, San Bruno, Calif.
- 88 Tom Rockwood, Gardena, Calif.
- 89 Jimmie Smith, Salem, Ore.
- 90 Gilbert Reed, Salem, Ore.
- 91 Michael Haney, Inglewood, Calif.
- 92 Gregory Edmunds, Oxon Hill, Md.
- 93 John Goad, Richmond, Virg.
- 94 Larry Darr, Mansfield, Ohio
- 95 George Russell, Owings, Md.
- 96 Geoff Perry, Brisbane, Calif.
- 97 Ron Pierce, Bakersfield, Calif.
- 98 John Hateley, Van Nuys, Calif.
- 99 Michael Sponseller, Phoenix, Md.

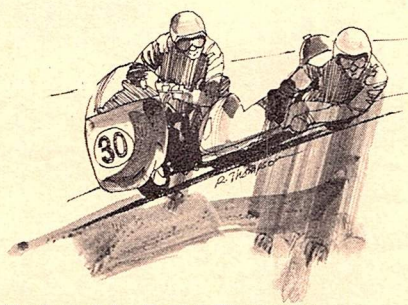


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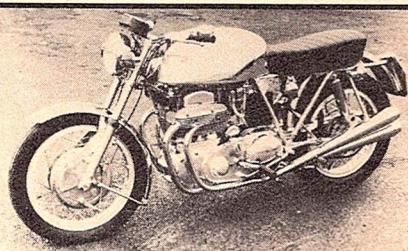
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BSA took everything they learned on the AMA Pro Circuit, and put that know-how into BSA for 1972.

Features like the BSA No-Tank Oil System, race-proven alloy forks that are lighter and stronger, aluminum alloy brake hubs that run cooler while reducing unsprung weight, the simple, dependable single cylinder 500 cc engine. And more.

Here are some entries in the new BSA line-up for 1972.

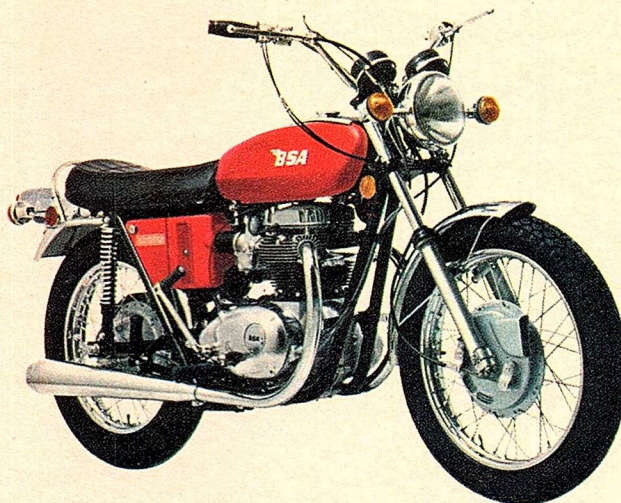
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BSA LIGHTNING 650.

This OHV vertical twin is built for massive, flexible power. The twin cylinders are punched by twin Amal concentric carbs, each feeding a single cylinder independently. The double-loop frame uses the center spine instead of an oil tank, so saving weight and cooling the oil more efficiently. The front forks control road shock through two-way hydraulic damping that allows 6¾ inches of travel. The conical brake hubs decrease weight, increase strength and dissipate the heat more rapidly. If you want lightning response in a bike, you want a BSA Lightning.



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Here's a pair of winners for off-road riding and motocross competition. These bikes are streamlined down to the toughest minimum, and beefed up with mighty 4-stroke engines that deliver plenty of torque out of every cc.

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Get out on a Victor Trail or a Victor MX—500's that let you know you're Riding The Winner.



	BSA LIGHTNING 650. OHV 4-stroke	BSA VICTOR 500 TRAIL. OHV 4-stroke	BSA VICTOR 500 MX. OHV 4-stroke
ENGINE TYPE:	2	1	1
CYLINDERS:	39.4 ft. lbs. @ 6500 rpm	28 ft. lbs. @ 5000 rpm	35 ft. lbs. @ 5000 rpm
MAX. TORQUE:	75 x 74 mm	84 x 90 mm	84 x 90 mm
BORE/STROKE:	9:1	10:1	10:1
COMP. RATIO:	4-Speed gearbox	4-Speed gearbox	4-Speed gearbox
TRANS:	2-Amal 30mm conc.	Amal 30mm conc.	Amal 32mm conc.
CARBURETOR:	Dunlop 3.25 x 19" K70	Dunlop 3.00 x 20" Trials	Dunlop 3.00 x 20" Sports
FRONT TIRE:	Dunlop 4.00 x 18" K70	Dunlop 4.00 x 18" Trials	Dunlop 4.00 x 18" Sports
REAR TIRE:	8" DLS	6" SLS	6" SLS
FRONT BRAKE:	7" SLS	7" SLS	7" SLS
REAR BRAKE:	56"	54"	54"
WHEEL BASE:	7"	7½"	7½"
GRND. CLEAR.:	383 lbs.	298 lbs.	260 lbs.
DRY WEIGHT:	3 gals.	2½ gals. (alum. tank)	1¼ gal. (alum. tank)
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NOVICE

Continued from page 114

Suddenly, as if out of nowhere, a rider was down directly in front of him! He hit his rear brake, sliding, trying to avoid the rider. Almost made it—but not quite. He hit the other bike's rear wheel. By now he wasn't going too fast. As he fell his leg was caught between the two machines. Quickly he scrambled trying to get out from between the two bikes. Other bikes were speeding past on both sides. I hope another one doesn't hit us, he thought. The other rider was off his bike now and lifted Paul's bike enough for him to free his leg. He hardly looked at the other rider. No time. He kicked his bike and was pleased that it started right away.

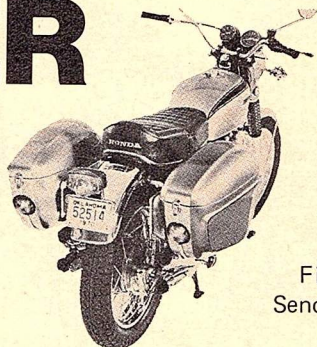
He had lost no more than a minute in the spill. His bike seemed okay except for tweaked handlebars. But now he saw that he was repassing many of the riders he had passed before. Soon he emerged into a small area where the dust seemed to have lifted a bit, and there was the smokebomb. A group of 20 or so were shouting at him and waving him on vigorously. He felt encouraged. He followed the riders ahead and soon found that the wide open expanse they had been riding on prior to the smokebomb had narrowed into a trail winding into a gorge. The trail was only wide enough for single file riding. On either side were big boulders and bushes. Soon the pace slackened. Paul was anxious to go faster, but saw no openings. At least the dust here was not so bad. Just for an instant he raised his left hand from the bars and wiped the dust from his goggles. It helped him see, but he hit a rough spot on the trail, bobbled and nearly lost it.

After a couple of miles of the single file trail, during which a couple of faster riders had come by him where he would have sworn there wasn't room for two bikes, the trail widened and made a right turn. There was a large, steep hill right in front. All over the hill riders were stuck. Some were sideways. Some had the rear wheel dug in several inches. Others were off their bikes, pushing, gunning their engines, working their clutches feverishly. Some riders were going off to each side of the hill, looking for a way around it. The riders in front of Paul were stopping, analyzing the hill, trying to figure the best approach.

This is it, Paul told himself. The hill Jack warned they might have—to separate the men from the boys. If I stop and look at it, I may never make it. He had been running in second gear. Now he whacked it on, shifted into third and kept it really buzzing. He was blasting past all of the riders who were hesitat-

(Continued on page 139)

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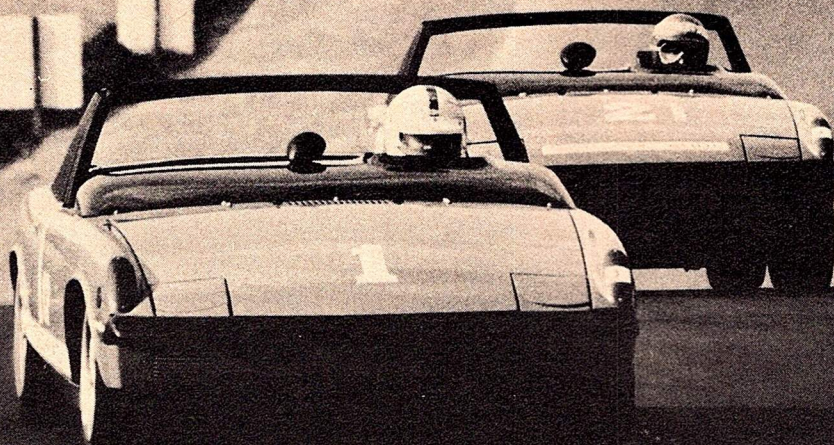
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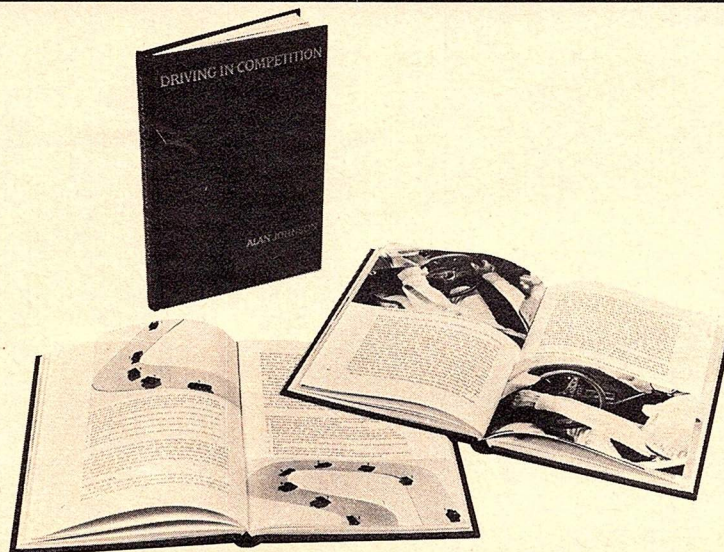
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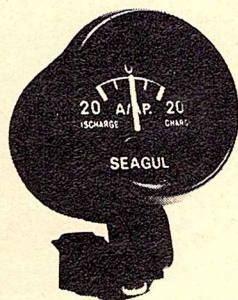


KAWASAKI F9 350cc ENDURO

Engine . . . 2 cycle, single cylinder, rotary valve
Horsepower 33/6500 rpm
Torque 28 ft.-lb./5500 rpm
Maximum speed 84 mph
Acceleration 1/4 mile: 14.8 sec.
Transmission 5-speed, return shift
Braking distance 39 ft./31 mph
Weight 265 lbs.
Wheel base 55.0 inches
Tire size, front 3.00-21
rear 4.00-18
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Ignition system Magneto CDI

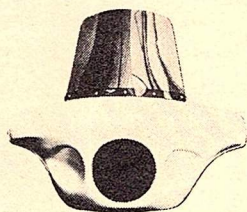
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HONDA 350 YAMAHA 350, 71
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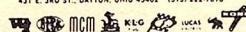


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REPORT FROM ITALY

BY CARLO PERELLI

FINDLAY AND FONTANA

A 16th century country palace designed by Leonardo da Vinci is now the somewhat unexpected headquarters for two famous names in our racing world. The first is Daniele Fontana, who manufactures sophisticated four-shoe competition brakes. The second is none other than veteran privateer Jack Findlay.

"We migrated here from nearby Milan two years ago," explains Daniele, "to have more space and peace. We now have plenty of both. I even cultivate a garden with salad, tomatoes, other vegetables, and some fruit trees. It is very relaxing, especially after a hard day's work or when you are trying to solve some difficult problem."

Brake production quality has benefited from this radical changeover, too. Quantity, though, hasn't really increased because Daniele Fontana is a rare perfectionist, and is aided only by two faithful men. They turn out between two and three brakes daily.

Daniele has been courted from abroad to industrialize at least part of his production, but has firmly refused to do so. "I know that with such limited production I cannot satisfy everyone. My deliveries often suffer from delays, too, but I'm deeply convinced that it absolutely cannot be done otherwise."

Forty-five years old, Daniele is small but full of energy. Once he rode successfully in long distance events which were tremendously popular. At the end of his racing career he married Elda, a super enthusiast who is helping with the firm's management. After a brief period of outboard engine production, he designed and began producing his racing brake.

Then, a famous name in the stopper field was Oldani, also from Milan. Olandi, though, only built twin-cam, double-shoe models, while Fontana introduced the four-cam/four-shoe design. Moreover, Daniele adopted the automobile technique of having fully floating brake shoes.

"With very little resources," recalls Fontana, "I struggled in a cellar for nearly a year to materialize my project. When the prototype was ready, it was fitted to a big bike. And, as a good rider happened to be around, I offered him the pride of the first test. Jesus!!! Only a few moments from the start, at the very first actuation, the front wheel rudely locked. He got off, tore his clothes, and was in an angry mood."

The fault was immediately traced. The floating shoes were abandoned for a more classic layout and the Fontana



Daniele Fontana and Jack Findlay discuss the swinging arm of their new, super-light 500 Suzuki.

anchor showed its excellent performance at once. This marked the start of a supremacy which is still very high in spite of the progressing invasion of disc brakes.

"Disc brakes? I built one four years ago which is as good as the present ones. For fast cruising it is the best stopper. My 750 Honda Four is fitted with two discs in front and I really find them super. But racing is another thing. The drum brake, offering about the same or even less weight in spite of appearances, offers more sensitivity in emergency situations. Remember, one of Hailwoods most spectacular crashes (which happened two years ago at Daytona) was caused by the non-progressive feeling of the disc brake.

"Moreover, the disc brakes that are working satisfactorily have been specifically designed for the models to which they are fitted. My brakes, on the other hand, produced in seven types, suit a variety of models very well. This year, Suzuki, Kawasaki and Harley-Davidson each ordered 50 units for their racing mounts. If this isn't confirmation of my ideas, what else is?"

Production began in 1965 with a year-end turnout of only 150 units. Now, production has been stepped up to about 700 units yearly; which, according to Fontana, is the optimum number possible if optimum quality is to be maintained. So far 3500 units have been produced and distributed world-wide. Of these, some are sent back to Italy for overhauls by super-fanatic owners.

The seven models now produced are the 170-, 180-, 210-, 230- and 250mm front units; and for the rear, 180- and 210mm versions. Except for foundry work, everything including drawings are done in the well-equipped Fontana workshop.

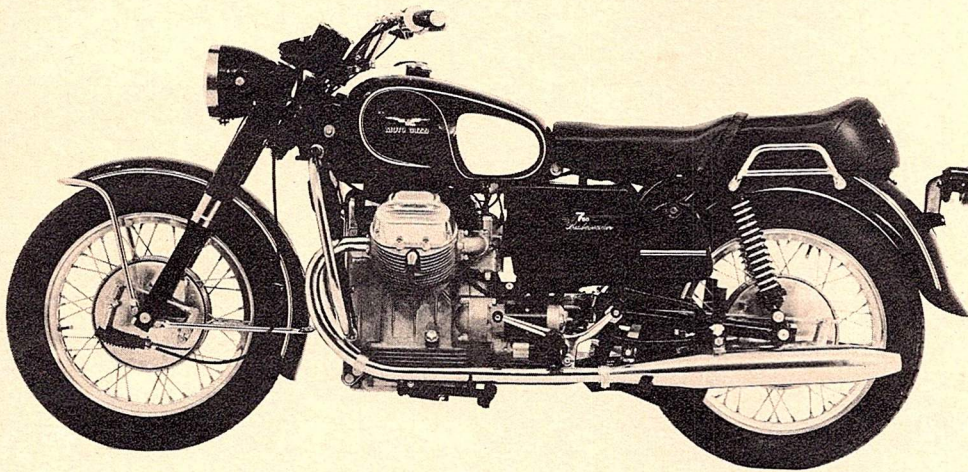
FINDLAY'S SUZUKI SPECIAL

Jack Findlay, a 32-year-old Aus-

(Continued on page 132)

The new Guzzi. It took fifty years to make.

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to break.



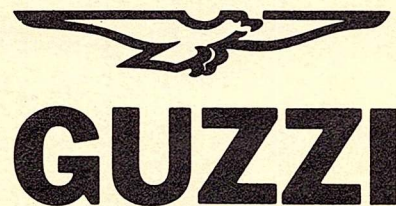
That's right. We started building the new Moto Guzzi 750cc Ambassador fifty years ago. That's when the first Guzzi rolled off the production line.

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Test ride the New Guzzi Ambassador at your nearest dealer today. You can count on endless miles of safe, pleasurable riding on the machine built exclusively for unlimited touring.

After all, if it took fifty years to make, just think how long it will take to break.



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The 250cc OHC single-cylinder

engine pounds out the power with plenty of big horses. And it's the perfect power for rough riding. Torque curve's right where you want it — nice and flat. Instant response in every gear.

Weight's always an important factor in the dirt and that's just what the new XL-250 lacks. You

can strip off the easily removable road equipment to lose even more weight. How did Honda make a four-stroke engine so light? Tough lightweight magnesium was used wherever possible.

Dependability is a Honda trademark. The XL-250 four-stroke single proves it again. Features four valves for measured

Always ride safely. Wear a helmet and observe all rules of the road. For a free color brochure, write: American Honda Motor Co., Inc., Dept. 10,



efficiency. And it's got a two-cable throttle system for quick, sure acceleration. You can count on this single to deliver the power, mile after mile, over very rugged terrain. Honda counts on it enough to back it with a very strong warranty.

What else does the XL-250 offer? Just look. Styling's what

you'd expect from Honda—sleek yet practical. The radical upswept muffler, besides being good-looking, really works. You won't make enemies for motorcycling when you pass. The Honda safety features are there, too. Ignition cut-off switch. New lockable helmet holder. Plus USDA approval

on the spark arrestor/muffler.

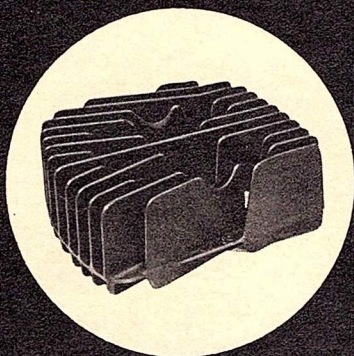
Your Honda dealer can introduce you to the new XL-250 soon. For a whole new experience in dirt riding, come on down and meet it. One ride and you won't be able to live without it.

**The New
Honda XL-250.**

Box 50, Gardena, Calif. 90247. The rider pictured above is a professional. Honda recommends that new riders not attempt difficult stunts. ©1972 AHM.

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ITALY

Continued from page 128

tralian, is quiet, valiant, and unassuming. He first came to ride in Europe in 1960, emerged as one of the best, but strangely never got a works ride. The only two people who have helped him in racing are Daniele Fontana in Italy and Harry Hunt in the U.S.

Findlay participates in about 60 European races yearly from March to October. Multiply that times 11 years of racing and you've got a lot of competition. In spite of an increasingly hard life for privateers, Jack holds a record of some 35 wins, among them the 500 class at the 1971 Ulster GP. Let's also recall his 2nd place in the 1968 500cc world championship.

He has straddled practically every "over the counter" mount available in the last decade. He rates the 250 Bultaco TSS of 1966 as the best because it was both fast and reliable. His worst ride was on the 1969 Linto 500, which showed excellent potential but suffered various mechanical ills.

During the quiet winter months, Findlay and Fontana have been particularly busy setting up an ultra-light "special" powered by a 500 Suzuki Twin. Frame design follows the famous Matchless-McIntyre concept which Findlay believes is the best roadholder. What's more, its characteristics are particularly suited to Findlay's riding style.

The engine has been prepared in two versions; one with air and one with water cooling. These will be alternated according to rules and situations. "Although I don't think I have given them any bad publicity," reports Jack with some sorrow, "I can't get special racing parts from either the Suzuki factory or dealers. I must thank Daniele Fontana for much of the preparation—especially the complicated parts such as cylinders, heads, pistons, rings, gearboxes, etc."

But why stick with the Suzuki Twin, modifying it into a racing powerplant when there are other good racing engines like the 500 Kawasaki available? The reasons are many. The Suzuki is less complicated, has a stronger crankcase and crankshaft, and gets considerably better gas mileage. In a World Championship event run over 125 miles, the Suzuki burns 6 to 6.5 gal. of fuel, while the Kawasaki needs 8.5 or 9 gal. The extra fueling stop necessary for the Kawasaki costs many positions.

So, with about the same power as the works mounts (a target not extremely difficult to reach) Findlay and Fontana are trying to challenge their rivals with lightness. Surely, their new mount will set a standard in the privateer field. □

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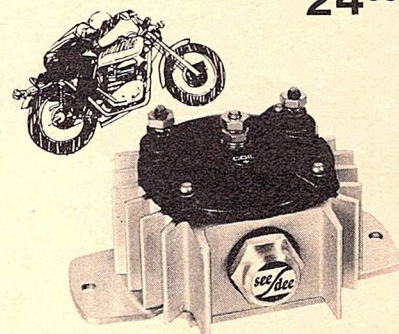
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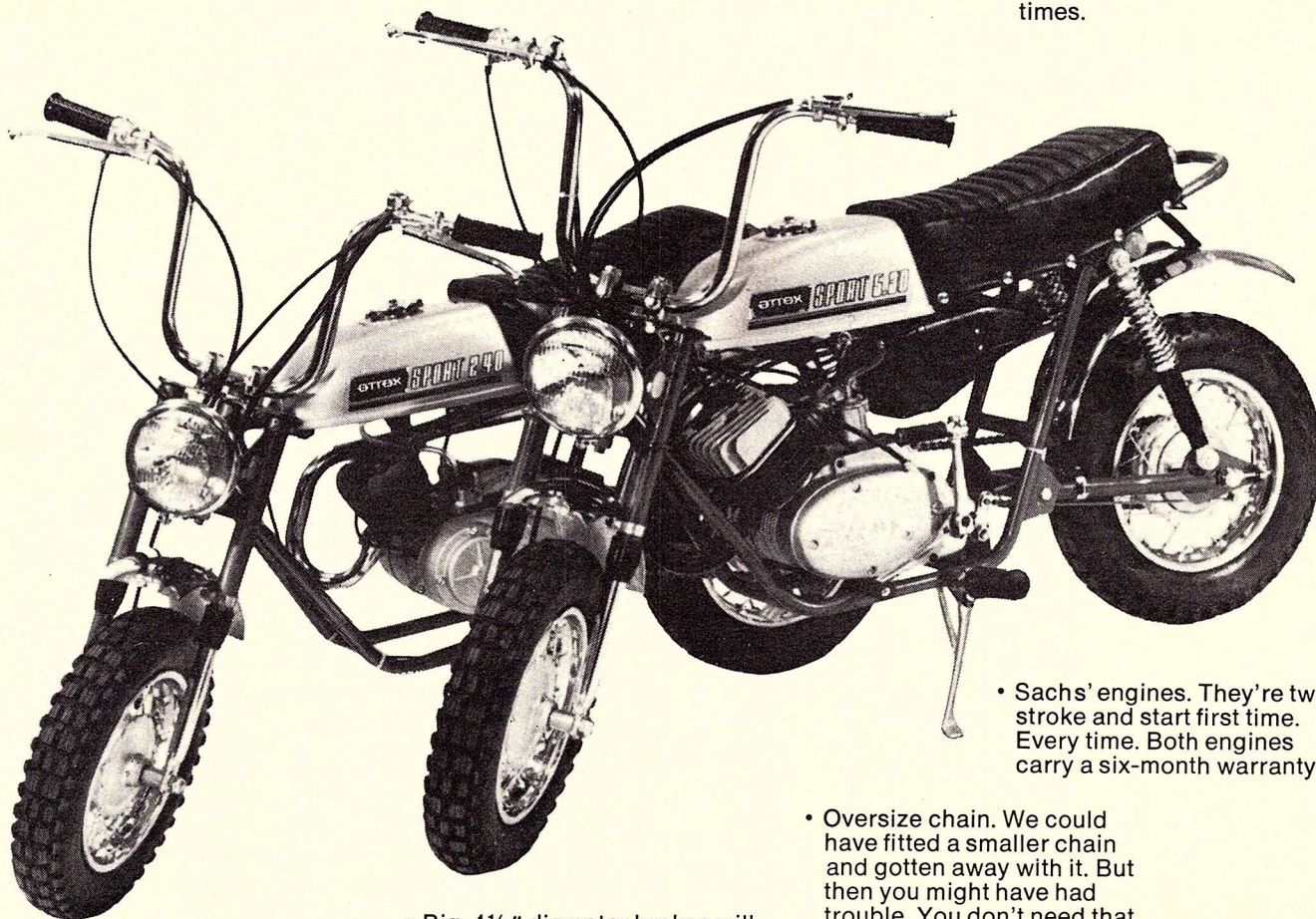
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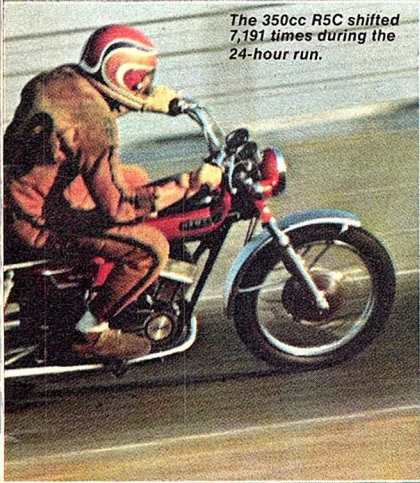
A funny way to introduce our new street bikes? Not when they have to live up to the claim, "It's a better machine." And, to our way of thinking, the best way to

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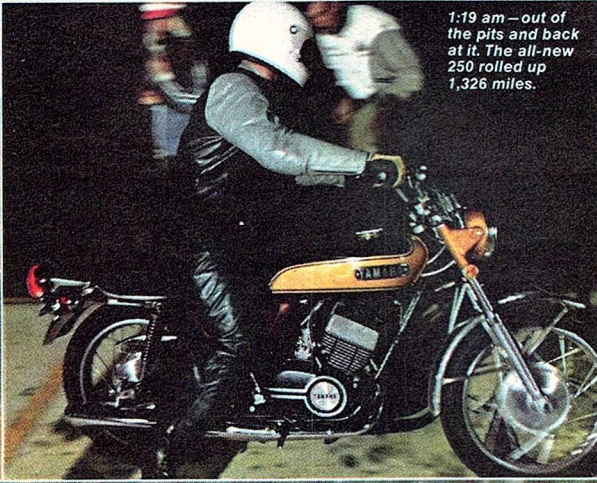
The place? Ontario Motor Speedway, Ontario, California. Its challenging 3.19-mile road course had everything we could

ask for. A long straightaway where our stock, production bikes could hit factory advertised top speeds. And 22 tight, treacherous corners where shifting, braking and over-all handling could be put to the ultimate test.

We had the track. The riders.



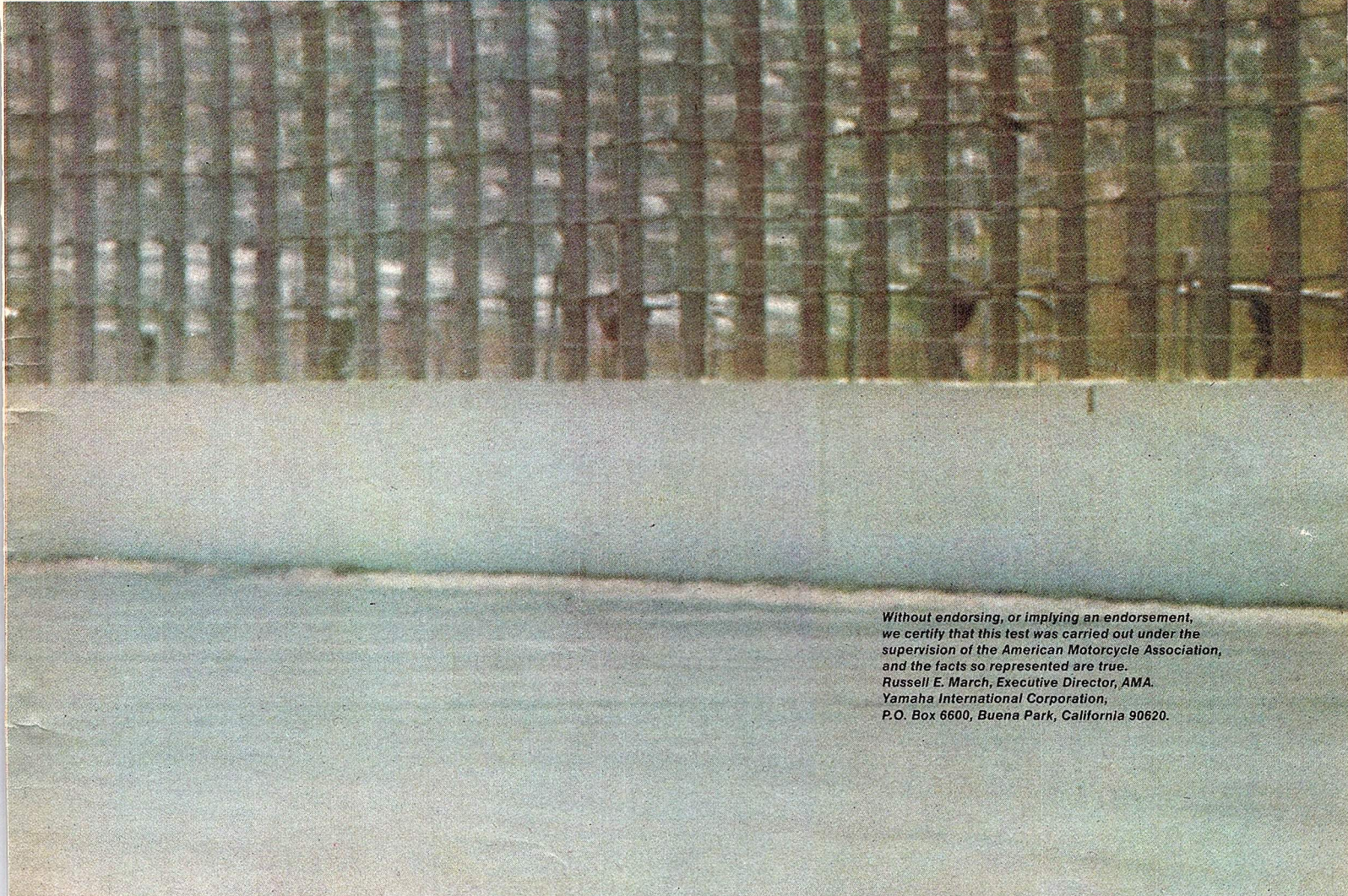
The 350cc R5C shifted 7,191 times during the 24-hour run.



1:19 am — out of the pits and back at it. The all-new 250 rolled up 1,326 miles.



The 4-stroke 650. Its new front disc brake was used more than 3,000 times.



Without endorsing, or implying an endorsement, we certify that this test was carried out under the supervision of the American Motorcycle Association, and the facts so represented are true.
Russell E. March, Executive Director, AMA.
Yamaha International Corporation,
P.O. Box 6600, Buena Park, California 90620.

And, thanks to the thoroughness of our overseas factory testing, we had the machines to meet the 24-hour challenge.

Needless to say, watching that last bike take the checker as it crossed the finish line at 1:15 pm, Tuesday, was a beautiful sight. The test was over. Our

bikes had rolled up a combined total of 3,974.84 miles and 1,246 laps. Not a bad 24-hour day's work, to say the least. But, more important, it proved that Yamaha is what we claim: the "better machine."

Our seven '72 street bikes are now at your Yamaha dealer. The

4-stroke 650 XS2, the popular 350, and the all new 250. Plus. The restyled 200. The big 100. The peppy 80. And the all new Step-Thru 70.

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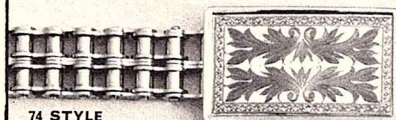
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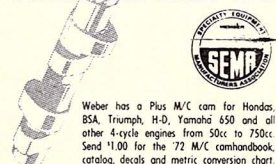
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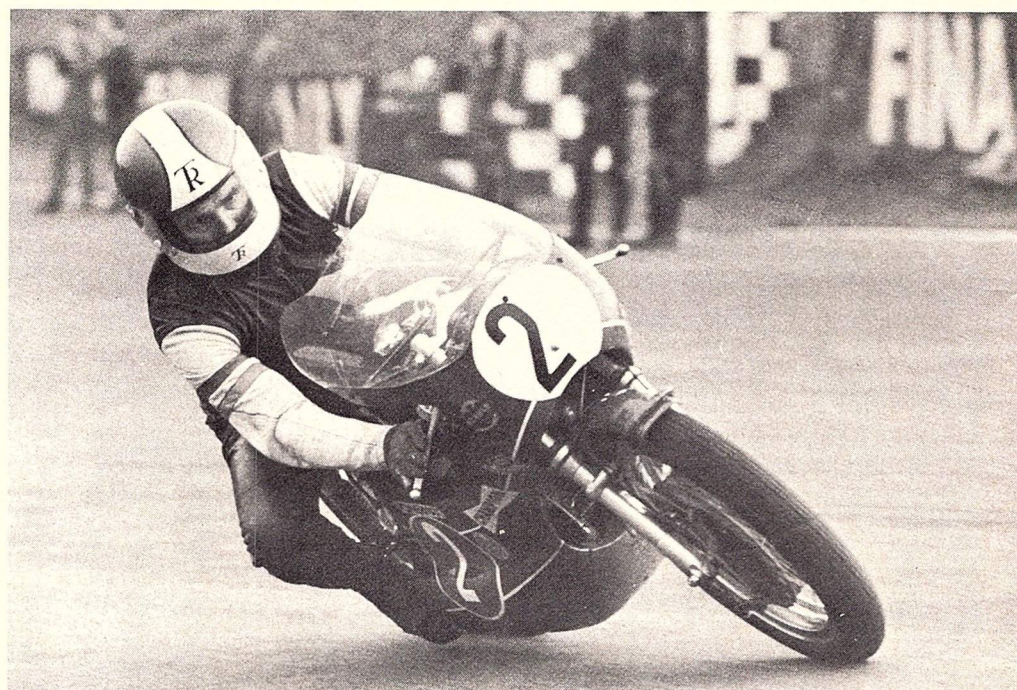


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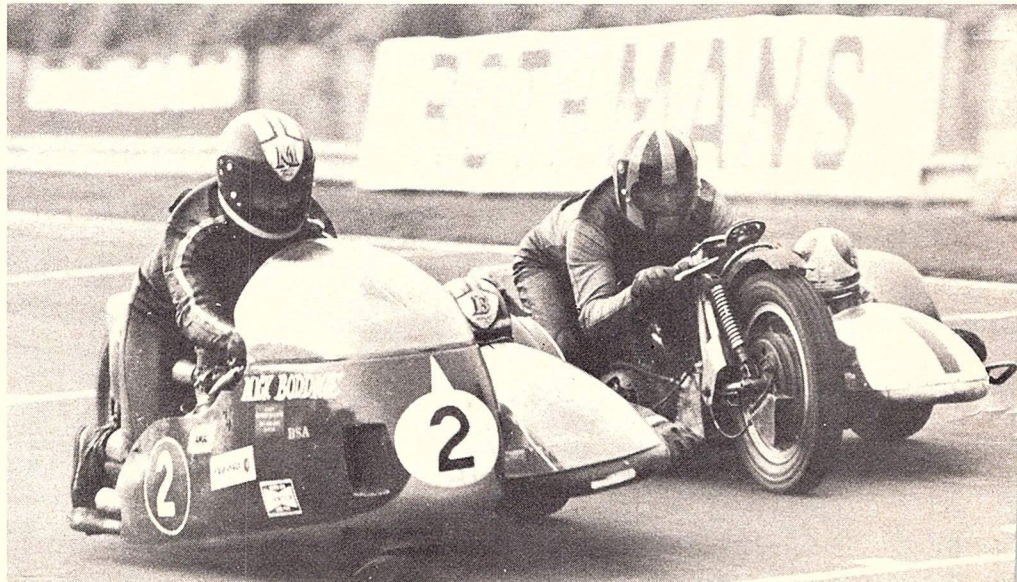
CONTINENTAL REPORT

BY B.R. NICHOLLS



Tony Rutter (350 Yamaha) heads for Brands Hatch class win.

Mick Boddice (2) and Norman Hanks (1) dice at Brands Hatch.



ROAD RACING FINALE

For some unknown reason, British road racers like to break their normal hibernation for the winter by having a quick outing at Brands Hatch the day after Christmas. For equally unknown reasons, about 4000 spectators like to break their Christmas by going and watching them race, and no doubt 1-year students of human behavior will go along and find out why they do it.

The racers could be doing it to see

how their modifications are getting on, but for the crowd it is probably a good excuse to get away from the mother-in-law or a chance to blow away the cobwebs caused by overindulgence. Whatever it is does not really matter; the point is the meeting is held. It was the final one of the 1971 season; the weather was mixed and the track was decidedly slippery, unlike 1970 when it was under 6 in. of snow and the meeting was cancelled.

The Yuletide program is a short one



Martyn Ashwood (740cc Weslake Metisse) showed bike's potential in winning final solo heat.

of simple make. There are three heats for solos over 125cc but not over 1000cc. The first seven in each heat go forward to the final. Sidecars from 350 to 1300cc have two heats, with the first six in each going to the final. Heats were five laps and the two finals were ten laps around the short 1.24-mile circuit.

The first solo heat saw 1971 British 350 champion Tony Rutter rushing into the lead on his championship-winning Yamaha. Similarly mounted Pat Mahoney and Barry Ditchburn tried unsuccessfully to catch him. The big disappointment in this heat was Cliff Carr's showing, home from the States after winning the American Association of Motorcycle Road Racers championship on a Kawasaki H1R. For Brands he was Yamaha-mounted, and never really got the model sorted out in time to be competitive. He can hardly wait to get back to the States again for his racing.

The second heat saw the race debut of the Hi-Tac Suzuki, which is a water-cooled conversion race kit for the 500cc model. Ridden by Barry Sheene it won the heat, although hard pressed by a 500cc single-cylinder BSA based on a motocross engine, ridden by Bob Heath. Then, in the final solo heat, Martyn Ashwood had no trouble winning on a 740cc Weslake Metisse, on which he has modified the fairing to give his hands protection against the vagaries of English weather. It has a distinct resemblance to the Peel fairings that used to be popular in the early 60s. The final was a bit tame, with Rutter again getting a good start and making the most of it, though Ashwood was not far behind. The big Metisse, though, was a bit of a handful on the tricky little circuit, and Rutter soon lost 2nd place

(Continued on page 138)

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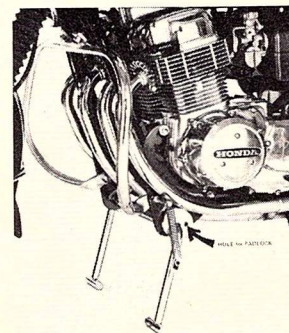
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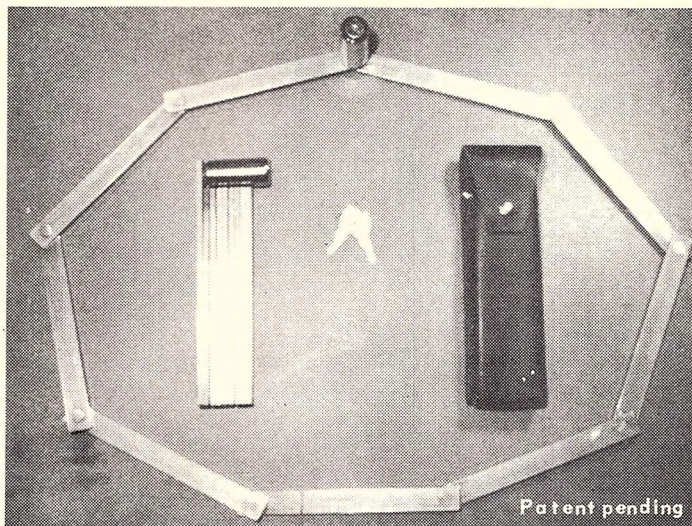
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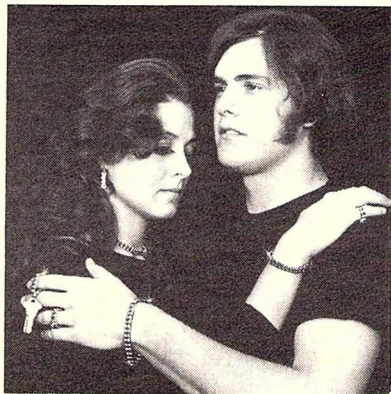
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Cont. Report

Continued from page 137

to Howard Robinson (Yamaha). Meanwhile, Mahoney was making up ground after a bad start and fought through to 2nd place by the time the flag fell, with Rutter taking the \$125 first prize. Robinson was 3rd and Ashwood 4th.

The excitement of the afternoon was left to the sidecar boys and they did not let the crowd down. Norman Hanks and Mick Boddice won the two heats, and then in the final were joined out front by Roy Hanks—in a real thriller of a race with nothing between the three of them until the final lap. Having dived in each other's slipstream all the way it looked as if Boddice, holding 2nd place into the final lap, had everything under control. He thought so too, until he loused a gearchange halfway around and lost the chance of catching Norman Hanks, who won from Boddice with Roy Hands 3rd.

BSA TWIN CONVERSION

All three were riding 750 BSA-powered outfits. It is possible for any owner of a BSA A50 or A65 Twin to uprate their engine to 734cc by means of the Devimead Jumbo Conversion kit which gives a compression ratio of 10.2:1 for racing or 9.5:1 for use on the road.

It is a simple bolt-on conversion which gives a bore and stroke of 79.5 by 74mm. The kit consists of a high-grade cast iron cylinder block, pistons, head gasket, pushrods, studs and bolts. Cost in England of this kit is around \$180, from Devimead Ltd., Dept. CW, Wilnecote Hall, Watling Street, Tamworth, Staffs, England. They will need to know whether your crankcase has 3/8 or 5/16 holding studs.

SHELL 200 PRIZE \$87,000

This is the time for rumors and reports of what might and might not be happening during the 1972 racing season. One thing is certain, the Italians have decided to set the scene alight with the Shell 200-mile race at Imola where prize money will reach about \$87,000. With an entry of up to 40 riders there will be no start money, but plenty of opportunity to win something however far down the field a rider finishes. The fact that it will be a 750 class race speaks volumes for the success of the American formula that is gaining popularity so rapidly in Europe. Entries have been invited from everyone who is anyone and it seems obvious that it will be the prestige event to win at the start of the season. Naturally, world champion Giacomo Agostini will be the man to beat as he is racing in his own backyard.

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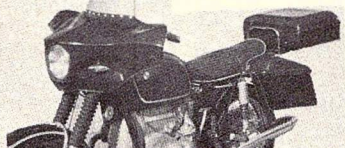
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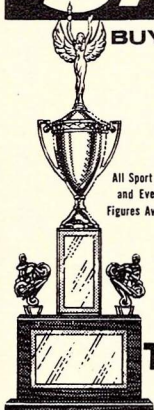
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NOVICE

Continued from page 124

ing. At the base of the hill there was a small ditch which he hadn't seen. He hit it hard and the impact threw him up over the handlebars. But he hung on, surprised, came back down on the seat and kept going. The dust was so thick on the hill from spinning knobbies that he couldn't see the top. He stood on the pegs, leaning forward so that as much weight as possible would be off the rear wheel. He kept it buzzing, finding a path between the stuck riders as he went.

About halfway up the hill he began to run out of power. He down shifted to second and kept it hard on. He made it a little further, then had to slow to avoid a rider who was sliding backward across the hill. He punched it into first and the bike made another 20 ft. before the back wheel dug into the powder and began to spin. He jumped from the bike and began pushing, working the clutch with the throttle full on. He could see the top of the hill now. It was only about 50 ft. more. But he was gasping for breath. The smoke and dust was choking him. He was roasting in his underwear. Don't stop now, he told himself. He dug his slipping boots deeper into the silt and pushed harder. Somehow he made it to the top. He got back on his bike and sat there for a full minute trying to catch his breath. He didn't look back. He knew that this was the hardest test he would face. And he had passed it. He started down the hill on the other side. He saw that at the bottom of the hill a checkpoint, the first one, had been set up. If anyone did find a way around the hill, they would miss the check and be disqualified. Somehow he found this knowledge gratifying. He slid into the check and one of the four men with crayons in their hands quickly marked a slash on his tank card. "Go!" he shouted, slapping Paul on the shoulder. God, this is really neat, Paul thought, now breathing nearly normally again. He quickly wiped the dust from his goggles as he accelerated down the trail. Then he stole a glance behind him. The nearest rider was a good way back, just pulling out of the check. Up ahead he saw that the next group of riders was perhaps a quarter of a mile ahead of him. The trail was relatively firm and even here. He punched into fourth. He was riding hard now, but he didn't seem to be gaining on the riders ahead of him.

But his "rest" didn't last long. Soon he came into a section that was full of "whoop-de-dos"—small jumps about 10 ft. apart. And to make it more difficult, the ground was a soft, beige desert sand. It would have been fun for a short

(Continued on page 140)



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NOVICE

Continued from page 139

distance, but the course was like this for several miles. He had to stand up a lot, and he found that his legs were tiring. A couple of the riders who had been following him came by him. They were off the main trail about 20 ft. Paul moved over but found the terrain there was no easier to navigate. So he moved back to the main trail. Gradually he was catching the next rider ahead of him. When he got close enough to see the rider's jersey he saw that it wasn't a man, but a "Desert Daisy." He was chagrined. Here he had been working so hard in what he considered a strictly man's sport, and here was a girl. And judging by what he could see, a slim, pretty girl. Riding a 100cc Hodaka. He resolved to try harder. Gradually, he pulled away. Big deal, he thought, a 250 against a 100.

Up ahead the course turned into a wide, deep sand wash. He knew lots of riders that hated this kind of terrain. Thanks to the training Jack had given him, this was a welcome chance to rest. He sat back as far on the seat as he could, got "up" on top of the sand in a planeing action, and gradually was able to shift through to top gear. It ran for almost five miles, curving every hundred yards or so. For the first time he began to see broken-down riders on the course. Every now and then he would pass one at the edge of the wash, his bike leaned against a bush. Sometimes they would wave. Others were evidently sleeping, knowing they would be there for quite awhile until somebody could come to their rescue after the race.

At the end of the wash Paul came to the second checkpoint. By now the riders were spread out so that a group was a couple of hundred yards ahead of him and another group a couple of hundred yards behind him. But while he was having his card marked, a Bultaco came sliding in behind him. Paul wondered why he hadn't seen him. Did he cut the course? Was he simply riding slightly off the main trail where the ground might be harder? Paul didn't have time to speculate—the rider was passing him. Oh no you don't, Paul thought. The trail was narrowing into an ideal desert trail—hard packed with frequent small hills and just enough rocks and turns to be interesting.

Paul caught the Bul rider and passed him. For the next mile he could hear the Bul right on his tail. He rode as hard as he could. Then the trail split for a short distance. Paul went to the right, the other rider to the left. When the two forks converged again the other man was there a hair ahead of Paul. The two dived back and forth all the way to the

next checkpoint. The adrenalin was flowing and Paul thought: this is it, this is why I went to all of this trouble. Just me and this guy I don't know, out here in the middle of nowhere busting our tails to pass each other.

But at the next check, his fun was over. As he slid in for the crayon check, his bike conked out. He pushed it off the trail and began cranking. No luck. He undid the wing nut on his plug holder, removed the plug wrench and unscrewed the hot plug. Looking at it he saw that it had whiskered, or bridged as the riders called it, when a grain of dirt sucked through to the plug electrode. He slipped it out of the plug wrench on to the seat. Then he unscrewed one of the extra plugs from the holder and screwed it into the cylinder head. He picked the plug up. It burned through his glove and he gingerly jiggled it around and managed to get it back into the holder. All the while other bikes had been passing him. He'd catch them. But that guy on the Bul was probably so far ahead by now that he would never see him again.

And that's the way it happened. It was another eight miles, mostly sand washes with one steep downhill before the pits. He caught most of the bikes that had passed him during the couple of minutes it took to change the plug. But that was too much to give the Bultaco rider. As he came into the pits he saw that all of the clubs' pit crews had lined up right alongside the course. The Desert Hares were there, but he and Jack hadn't arranged to have them bring their gasoline and Gatorade with them. He would have to go to their truck. He made a wrong turn and lost a couple of minutes before he found the truck. He pulled in and pulled in his compression release to kill the engine. He pulled off his gloves and pulled his goggles over his helmet. Quickly he found the Gatorade in the cooler and took a long deep drink. Then he grabbed his gas can and a funnel, unscrewed his tank cap and filled it. He took another shot of the Gatorade, pulled his goggles back over his eyes, wiped them with his bare hand, pulled his gloves back on, cranked the bike and took off. The whole thing couldn't have taken more than 3 or 4 minutes. But if he had arranged to have the club have his gas right on the course....

As he rode back on to the course he realized that there were a good many spectators watching him. The club members were pointing in the direction of the course and signaling him to go. He knew he was tired and starting to get stiff, but there was quite a kick in having all of these people watching him. He screwed it on even harder than usual, lofting the front end over the small jumps and sliding through the turns. But

(Continued on page 142)

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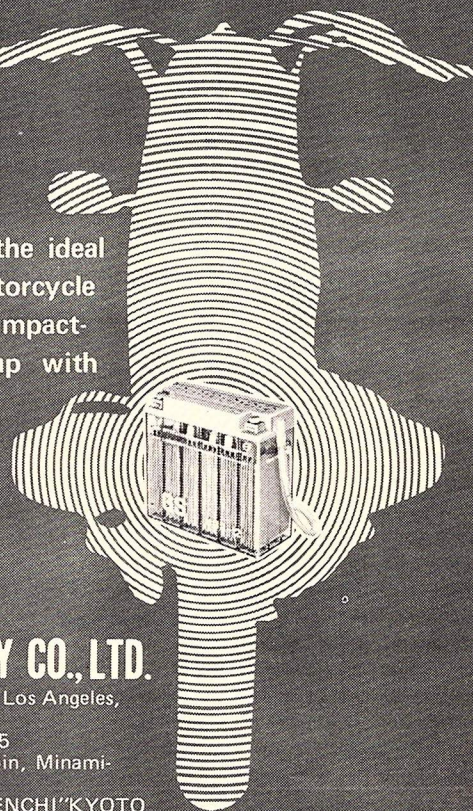
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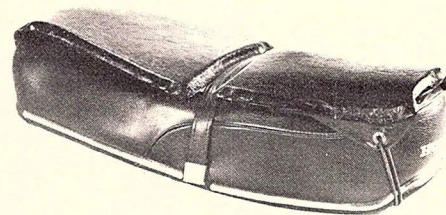
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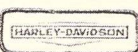
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NOVICE

Continued from page 141

soon the glory was over. He was back out on the trail—totally alone. Now, for the first time, he had to pay close attention to where the trail went. There was nobody up ahead to follow. After a time he looked back. He saw no one. He had the strange sensation of being the only one still in the race. Or of being lost. But every once in awhile he would come across a broken-down rider to remind him that he was indeed not alone, and was still on the course and in a race.

For the first half of the second loop he rode faster than at any other time during the race. Since there was very little traffic, dust was not a problem and he could see well. When he came to the hill where all of the riders had been stopped, there was nobody there except a couple of guys at the bottom with their bikes. Many of the riders had figured out that there was probably a checkpoint, and therefore water, on the other side of the hill and had left their bikes and walked over there.

The last quarter of the race he slowed down. Occasionally he picked off a slower rider. Nobody caught him. He was pooped. But his spirits were high. His first race and it looked like he was going to make the full 100 miles.

He expected to see a large group of spectators when he pulled across the finish, like there had been when he came through after the first loop. But when he came in he found that most of the spectators had drifted off. So what, he thought, elated that he had completed it.

When he rode up to the truck, Jack was drinking a beer and talking to another rider. Jack grinned at him.

"How'd you do, partner?"

"Pretty damn good," Paul grinned back. "I finished."

"Did you like it?"

"You better believe it. I loved it. But I'm sore as hell now." He began peeling off his helmet, gloves, goggles and jacket. "How long have you been in?"

"Oh, about 20 minutes," Jack said.

"You're kidding."

"No, really. Ask him," he said, referring to the other rider.

"That's right," the rider said.

"And I thought I was really going."

"Listen, you did great. It was your first race and you finished it. It was a fairly long one, too."

"Would you say that was a hard course or about average?" Paul asked.

"Naw, that was an easy one," Jack answered.

They stopped at a service station on the way home, attempting to get the outer layer of dirt off. When Paul looked in the mirror he saw that his

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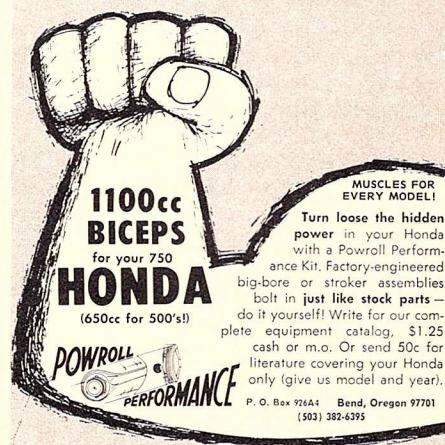
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whole head was a grey-brown from the dust. It was thick in his hair, caked in a layer on his lips, in his ears, down his back, everywhere. His eyes were blood red. When he tried to peel the dirt off his lips some of the skin went with it. He was bone tired now. And all of his muscles ached. They got hamburgers from a taco stand about halfway home. Paul was famished. But he was so exhausted he hardly felt like eating.

Then they got stuck in a traffic jam coming back into Los Angeles. It was almost dark when they finally got home. As they were unloading his bike, Mary and the kids came out to greet them.

"You look terrible," Mary said. The kids were dancing about excitedly and asking him if he won.

"I know," he told her. "And I feel just like I look. But I had a ball. I finished. And I passed a hell of a lot of riders." To the kids he said, "No, daddy didn't win. Maybe next time, okay?"

Jack climbed wearily back into his truck. "He did damn well for his first race," he said proudly of his pupil.

Paul took a long hot shower and scrubbed vigorously to get clean. Then he soaked in very hot water and epsom salts. After that he crawled in bed with the Sunday paper. His eyes were so irritated he could hardly read. He fell asleep before he finished the funnies.

When the alarm went off in the morning he realized as soon as he got up to shut it off that he was as stiff as a board. For the next few days it was painful to climb the single flight of stairs to his office. His lips were badly chapped, cracked, and bled a couple of times when he opened his mouth wide. It was a couple of days before his eyes were back to normal. Everyone at work asked him what he had done to look that way. They all seemed impressed when he told them he had raced a hundred miles across the desert on a motorcycle. He reveled in his new glory. He knew he had the fever. He was addicted.

He and Jack went racing 'most every week after that. And he seemed to get just a shade better each time. About a month after his first race he received a finisher's pin and the results from the club. He examined the pin carefully, then put it on a hat he had purchased just for that purpose. He grinned. Then he hunted down the list for his name. Out of 500 novices he had finished 125th. There had been 188 finishers. That meant that he had beaten 63 of the riders that finished. Counting all of the starters, he had done better than 375 of them. And some of them were riding bigger bikes than he had been riding. He had been the 85th 250cc finisher out of 102 250cc finishers. Not a bad beginning, he told himself. Not a bad beginning at all.



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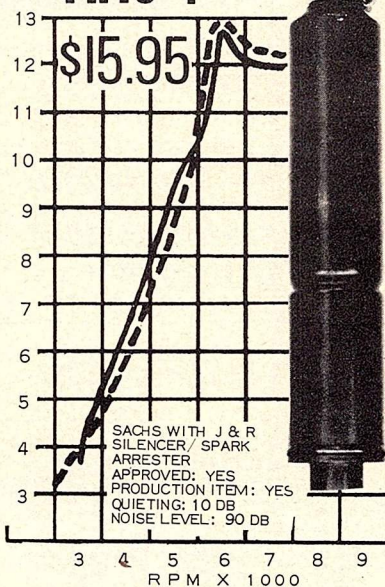
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Continued from page 96

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standout too. It was lucid, copious, and
almost comically comprehensive. *The
Book of the Sunbeam*, elaborately illus-
trated with line drawings, diagrams,
cutaways and photographs, contained
indirectly relevant sections on driving,
license procurement, insurance, riding
clothes, club membership, hand sig-
naling, skid correction, roadside signs,
and gave a detailed exposition of Herr
Otto's four-stroke cycle. There were
minute instructions for such advanced
exercises as total dismantling, overhaul,
and reassembly of the gearbox. Natural-
ly, there was a strong fraternal bond
among devotees of so characterful a
make, and this, in or around 1923,
found expression in the formation of a
club, the Sunbeam M.C.C. Three years
later this nationally renowned body
abandoned its exclusivity and accepted
owners of any make as members.

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Gradually, and somewhat to the dis-
taste of longtime idolators of the Mar-
ston ideal, the Imperial Chemical Indus-
tries' influence began making itself felt
during the Thirties. There was, to be
sure, no perceptible slackening of the
old standards of quality, but chrome-
plated gas tanks introduced a painfully
anachronistic touch to the exterior dec-
or. Engineering developments around
this time included the addition of two
250 models, one a high camshaft push-
rod, the other a road race aspirant
with a rather antique bore/stroke ra-
tio—59 by 90mm. This, the Little 95,
never made its intended mark, however.

Also in the Thirties, the firm became

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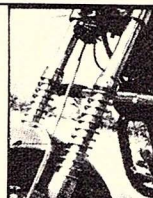
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SUNBEAM

weight conscious, parting its range down the middle into lightweight and heavy-weight divisions. The former included 250-, 350- and 500-cc models, while the heavy division consisted of the time tested Long Stroke ohv 500s in various stages of potency and a side-valve 600 for sidecar work. Sporting versions of the lightweights gave the Sunbeam tradition another sock in the eye with blue tanks.

The blackest day, though, came in 1937 when Wolverhampton's association with the *ne plus ultra* motorcycle was severed and Sunbeam moved south to Plumstead, London. There they joined Matchless and AJS under the Associated Motorcycles umbrella. Some criticism followed, but it's only fair to say that the bikes that carried the Sunbeam badge from 1937 through '45 were still of excellent quality, even if they lacked the individuality of their Wolverhampton forebears.

The final chapter of the story begins shortly after World War II, when BSA acquired the Sunbeam name from AMC and, for most critics' money, there was only one thing wrong with the bikes that came in the wake of this deal: misuse of the Sunbeam label. The closely related S7 and S8 machines gave a new meaning and validity to the term "badge engineering."

Designed by Erling Poppe, a veteran of the English sprint courses, the S7 and S8 were 500-cc vertical Twins with their oversquare (70 by 63.5mm) aluminum alloy cylinders in line-ahead formation. They also had integral four-speed gear-boxes, fully balanced cast iron crank-shafts, and shaft final drive via under-slung worm gears. The two models differed only insofar as the S7 tourer had in-line valves, canted at 22 deg. from the vertical, against the more sprightly S8's 90-deg. valves in hemi combustion chambers. Camshafts were overhead and chain driven, and the numerous shared refinements included a strictly non-varicose engine lubrication system (all oilways internally formed) and a plunger-mounted saddle with wick lubrication.

Former works rider Graham Walker, who had become editor of *Motor Cycling*, wrote of the S7: "It starts first kick... idles like a gas engine... is completely devoid of transverse torque... has brakes equal to its magnificent steering qualities, [and offers] performance which is deceptive because of its very smoothness."

So what was it, then, that foredoomed this paragon to extinction. Could it have been that apple green tank and mudguard paint job?

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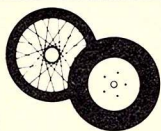


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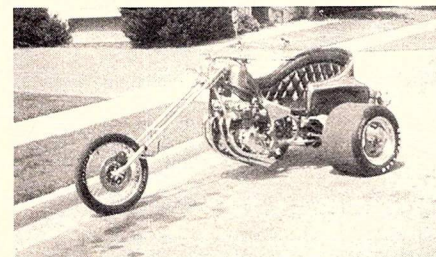
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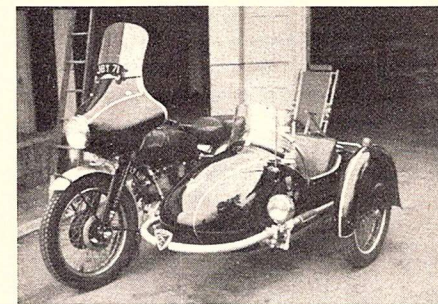
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COLLEGE GRADUATE national motorcycle club in process of formation. If you have your sheepskin, or are in your last year of college, contact **BARRY SIMOWITZ**, 3215 Ave. H, Brooklyn, New York 11210.

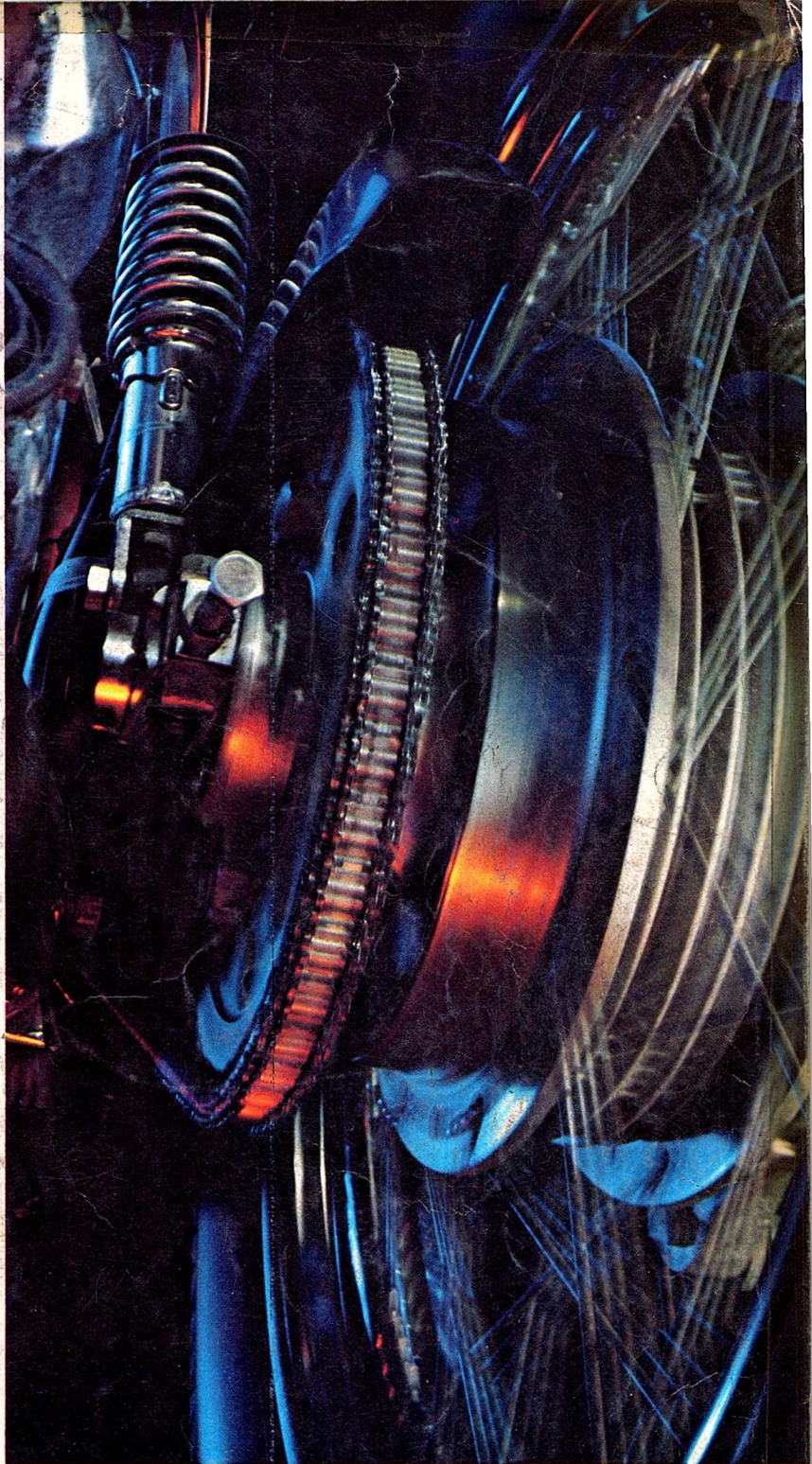
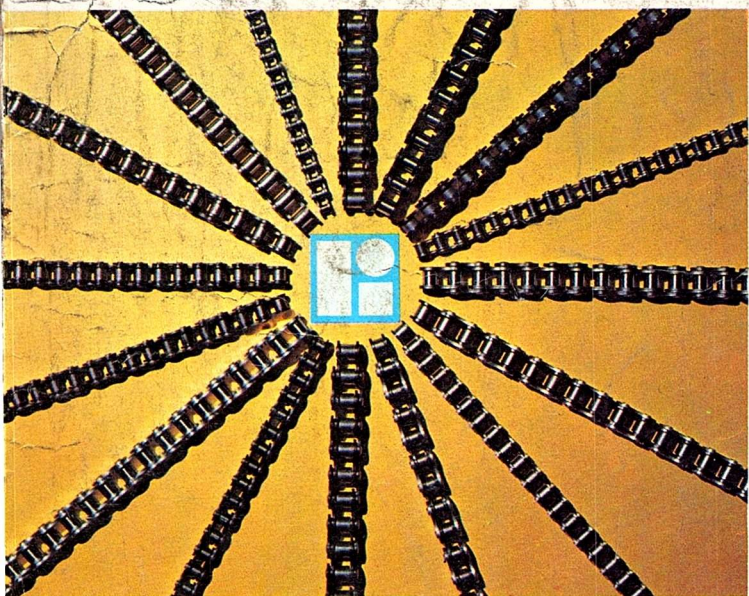
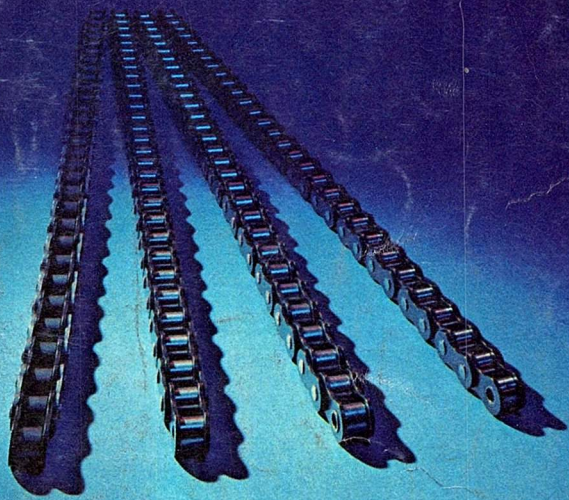
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SLIPSTREAM



Photo by Marshal Safron

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the Chain Gang

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POWER TRANSMISSION

MAR 16 1972

Models not shown:
BANSHEE 90cc
mini enduro.
RAIDER 125cc
road machine.
PANTHER 125cc
trail bike.
PHANTOM 250cc
road machine.

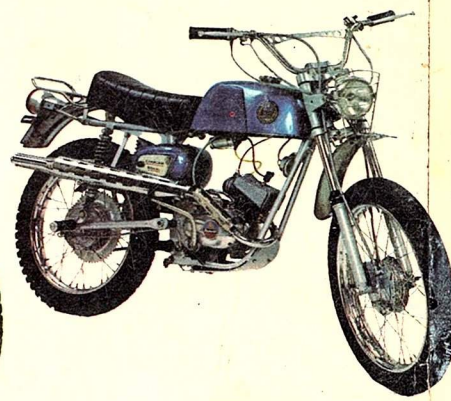
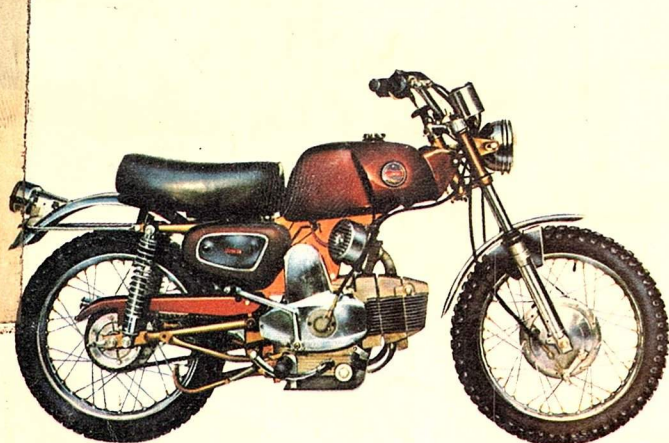
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twin 29mm concentric
Dellorto carbs.
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Gets up to 115+!
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shoe brakes hold
instantly! Tornado...
when you want more
from a motorcycle!



SUPERSPORT. Pure, white-lightning...
250cc's of it! Combine
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low center of gravity, great
Marzocchi hydraulic forks and
you know you've got a machine
that will keep you out of trouble
over the rough spots! It takes
people with real motorcycle
experience to make a machine
like this one... and that's
Benelli! The Supersport for
the super ride!

ENDURO. This great motorcycle
is 175cc's of go-for-glory power!
A real rider's machine with
a 4-speed engine, hydraulic
Marzocchi forks and those big, tough
"knobby tires! This is the
perfect cycle for taking on the
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that's what the Benelli Enduro
is all about. When you kick
over the Enduro you get out front
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COUGAR. A real beauty! This is
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the rear. The dual rear sprocket
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just a couple of reasons that this
machine handles so well. When you
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